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ABSTRACT

This document is the first part of a comprehensive study designed to review existing data about child development and the evaluation data of programs for children in order to propose recommendations for Federal program planning. Two major goals of the work reported in this section (Volume 1 are: (1) to arrive at an adequate definition of "disadvantage," or more specifically, those kinds of factors in childhood for which Federal intervention seems warranted, and (2) to review the kinds of scientific evidence that might justify and direct government intervention. The section has six chapters. Chapter 1 is an introduction to the study, with discussion of the approach that is used. The notion of discrete public purposes as determinants of the larger goals of Federal programs is explained. Chapter 2 presents a historical review of American public programs, focusing around the public interests that are commonly behind the programs. Chapter 3 discusses research evidence that supports early intervention, as well as conflicting views on this issue. Chapter 4 analyzes data concerning connections between childhood events and outcomes in adolescence and adulthood. Chapter 5 reviews measurement indices available for evaluation of educational, child development, and family programs. Finally, chapter 6 offers a discussion of the health issues involved in intervention on behalf of children which parallels the preceding analysis of psychological and family intervention. (DP)

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FEDERAL PROGRAMS FOR YOUNG CHILDREN: REVIEW AND RECOMMENDATIONS

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VOLUME I: GOALS AND STANDARDS OF PUBLIC PROGRAMS FOR CHILDREN

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REVIEW AND RECOMMENDATIONS

VOL. I: GOALS AND STANDARDS OF PUBLIC PROGRAMS FOR CHILDREN

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THE SECRETARY OF HEALTH, EDUCATION, AND WELFARE
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Concern for the well being of its children is one index of the level of civilization any society has attained. Public efforts on behalf of children have a long history in the United States, and have gradually increased over the years to the point now where the Federal government alone expends several billion dollars each year through two hundred programs designed to benefit young children.

Yet massive funding and far-flung programs do not assure real impact, and there remains serious--and rightful--concern in this country that some children still do not experience those positive conditions necessary to assure their full and healthy development. My predecessor as Secretary, Elliot L. Richardson, commissioned this study to review the range of Federal programs for young children, sift out what we know of their effectiveness in meeting the goals set for them, and recommend ways to redirect the Federal effort for children in order to meet their needs more effectively. Professor White has brought together a vast amount of historical background information, social science theory, research data, and evaluation study results. His policy recommendations are carefully reasoned and painstakingly documented.

Reasonable men may well differ with the particular recommendations of the study. Certainly any effort which attempts so broad a sweep may be faulted for inadequate attention to any one specific area. Nonetheless, the ideas presented are timely, well considered, and provocative; they deserve wide debate and discussion. They certainly will receive such attention within the Administration as we work to improve Federal policies for young children, and it is my hope that publication of this and similarly thoughtful studies will likewise help to inform the decisions of those who make policy in States and local communities.

Secretary

Chapter 1: Purpose and Design of the Study

Summary

This study reviews existing data about child development and the evaluation data of programs for children in order to propose recommendations for federal program planning. The study (1) rests primarily upon an analysis of formal data; (2) concerns itself with those parts of existing data that have to do with the larger directions of public programs on behalf of children; and (3) applies to the existing body of data a somewhat stringent test -- the test of its definitiveness for program recommendations.

The study is, in effect, a test of recent premises about government action on behalf of children; the premise that program planning can be guided by child development data and evaluation data, and the premise held by some that intervention programs should move from a concern for crisis toward a concern for benefitting child development and removing 'disadvantage' in childhood. Recent topics of public discussion are reviewed that provided a context in current events for the study.

It required several steps in thinking to come to a definition of 'disadvantage' during the course of the study.

The first step was to understand that disadvantage refers to a multiplicity of children's problems, a multiplicity that is stereotyped when the term 'disadvantage' is equated with the problems of the average black child or the average poor child.

The second step led us to believe that five standards of disadvantage are necessary to comprehend all of the children identified as disadvantaged in public discussions; standards of: (1) income; (2) ethnicity; (3) home environment-social class; (4) crisis; and (5) equity. These are correlated standards, in the sense that a child identified under one standard will generally also be identified under others. But one will not include all children, or all relevant problems, unless all the standards are applied.

The third step led us to believe that all the standards of disadvantage are defined from, and are limited by, standing public purposes with regard to children:

(1) To see to it that any child learns and develops in such a way that he can take up some reasonable vocational or economic place in society.

(2) To provide for "political socialization" in the early years; to see to it that normative standards of American life, patriotism, a conception of himself as related to society, are instilled in the child as he grows up.

(3) To regulate labor: to develop public programs for children that will (a) restrict the use of children as labor; and (b) provide care for the child to release the parents for the labor market.

(4) To provide help for the child in certain kinds of crisis situations -- either to provide crisis insurance for children on a compassionate basis and/or to intervene in childhood crisis on a calculation of ultimate benefit to society.

The value of a conception of public purposes seems to lie in this understanding. It argues that public intervention on behalf of children has been, and probably is, guided by certain definable issues. It is selective. It provides a basis for understanding what is now presently included in public discussion as 'disadvantage' and what is not. It leads one to see "contracts" -- distributions of responsibility between family and public institutions -- which consummate the purposes. It leads one toward the historical development of institutions, professions, and services developed over time to fulfill those purposes.

Chapter 1: Purpose and Design of the Study

This study reviews existing data about child development and the evaluation data of programs for children in order to propose recommendations for federal program planning. It was done for the Office of the Assistant Secretary for Planning and Evaluation in HEW, and its particular concerns were the issues and the justifications for federal programs on behalf of children. Federal programs are now only a small segment of all public programs on behalf of children. The federal share is only a minority share of public resources given to children's education, health, and family needs. But more and more it seems clear that a significant responsibility for statement of issues, research, and program analysis is today being carried out at the federal level.

It seems inportant to make clear at the outset certain limitations or specializations of the study: (1) that it rests primarily upon an analysis of formal data; (2) that it concerns itself primarily with those parts of existing data that have to do with the larger directions of public programs on behalf of children; and (3) that it applies to the existing body of data a somewhat unusual and stringent test -- the test of its definitiveness for program recommendations.

The study is primarily a survey of formal data. It tries wherever possible to see events as they are captured by counts and indices and to find connections among events through correlations. It arrives at judgements about the importance of various factors in child development from studies in which the effects of specified variables are studied by some application of existing techniques of research design. It is obvious that there are both strengths and weaknesses to this approach.

The study is an outgrowth of a new line of argument that has emerged in the last dozen years, one that has not historically been prominent in the direction of government activities on behalf of children, but that has now come to be influential. Recently, public policy for children has been conditioned by arguments drawn from the data of child development. The use of such data has signalled what seems to be a new direction in the target of federal programs, direct intervention in child development with the intent of optimizing it. A second feature of the last ten years, directly written into legislation, has been an emphasis on formal evaluation as at least one test of program efficacy. There have been unprecedented efforts to study program effects in the last few years. Children in such programs as the Title I program of the Elementary and Secondary Education Act, Head Start, Follow Through, etc., have been compared with children not in such programs through treatment-control designs aimed at assessing the overall impact of the program and, to some extent, the mechanisms by which it acts upon the children.

Traditionally, the initiatives for programs and program changes have usually arisen out of the judgment and the experiences of the professionals who give services to children. People who work with children -- pediatricians, social workers, teachers -- have brought forward the issues and suggested the solutions. It seems fair to say that today the testimony of people who work with children still forms a primary basis for the planning and evaluation of government programs. It has probably always been true that anyone seeking to express his judgment has marshalled numbers, statistics, indices, and studies to support his position. What seems to be happening today is the attempt to shift emphasis away from the informal and towards the formal evidence. A study like this is one test of how much that can be done.

Our coverage of data has been directed towards data that seem most definitive in determining overall emphases and direction of federal programs on behalf of children. There is an enormous scientific literature on children's health, on family factors in child development, and on the analysis of children's abilities, their learning, their motivation, their perceptual abilities, their sensory development, their physical growth, etc. Probably, a large part of this massive literature gets used at some level of practical work with children. Those who teach children in schools are quite apt to be influenced by any one of a dozen different schools of thought about children's learning and the conditions necessary for optimizing it. Those who do therapy with children are influenced by data and arguments arising out of literature on personality development, psychoanalytic formulations, and parental influence on children. We have not gone into all the literature on child development, nor all of the literature that might in any sense be considered relevant.

Some parts of the research literature have been particularly important in the last ten years because they have seemed to argue for major diversions of public resources into programs directly concerned with child development. It is with the literature presumed to dictate an amount and direction of government resources that we have been concerned. We have been interested in literature that might define the necessity for intervention in child development in the early years because of special effects of early experience, or because of "critical periods" which dictate that after the very early years of life, disadvantages in development can no longer be compensated for by later favorable conditions. We have looked at literature that seeks to connect events in early childhood with later outcomes in adulthood. And we have reviewed the literature on testing and measuring children, because of the need to discuss standards to be used in evaluating government programs on behalf of children.

Finally, the third special aspect of our use of research literature must be noted. We have been concerned with the definitiveness of the data for the direction of child development programs, and have sought for a kind of solidity and conclusiveness of child development data that is unusual. We were seeking to find out how much one could use data to provide directions for federal intervention. We were not able to find many conclusive proofs either arguing for the mounting of programs for children or for the effectiveness of programs for children. To say this, however, is not to deny the existence of any number of suggestive, interesting, argumentative lines going from evidence towards the amount and kind of intervention that might be conducted on behalf of children.

The above remarks were intended to set the stage for a discussion of the study itself by pointing out what the study was intended to conclude and not intended to conclude. Perhaps it will be useful to set the stage in another way. The past ten years has seen mounting public concern about the problem of children in our society. We are in the midst of a period of fairly intensive public discussion about children, their welfare, and the adequacy of public institutions for children. Those who have a sense of history will be aware that this is not the first such period in American history. We can identify a wave of public activity on behalf of children at about the time of the New Deal. Going back a little further, we can find another peak period around the turn of the century, near the time when the first White House Conference was held in 1909. It will be necessary and useful to discuss later the connections between present activities on behalf of children and previous activites. For the moment it seems useful to try to see the study in the midst of the "current events" that seemed relevant to it.

The study was undertaken during a time when the following kinds of public and political activities were going on:

-- There had been some eight years since the initiation of "Great Society" poverty programs. One of the important components of the poverty program had been the notion of 'community action programs', intended to stimulate grass roots political organization on the part of the poor to make their weight felt more strongly in the direction of government programs on their behalf. One of the community action programs had been the Head Start program. The notion of community action had waned in popularity but one CAP project, Head Start, had risen to become the most publicly prominent and popular component of the poverty program as a whole.

-- There had been some seven years since the Elementary and Secondary Act had provided, for the first time, a massive federal subsidy for public education, a subsidy targeted toward providing extra funds for "disadvantaged children" in order to allow them to achieve "equality of educational opportunity". During the year of the study, 1971-1972, the administration had ruled against desegregation through busing as the solution to the educational problems of black children, and had proposed in its stead a further investment in compensatory education.

-- There was rising public discussion of mounting costs of health care and concern about mounting inaccessibility of health care to the poor. There was persistent assertion of the principle that "health care is a right" to be distributed equitably by the government. There were drives toward a general reform of the health care system, with proposals ranging from private to national health insurance schemes.

-- There had been three years since the Westinghouse evaluation of Head Start had come out with some negative results that were much disputed in the public press. In the public press at the same time, questions about Head Start were mixed together with arguments about the inefficacy of compensatory education due to the possible genetic IQ inferiority of blacks. They offered testimony from the scientific side in fairly direct contradiction to preceding scientific arguments about the possible modifiability of a child's IQ through early intervention.

-- There was a rising amount of public enthusiasm about preschool

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education, precipitated by at first Head Start, and then the very popular TV program for preschool children, Sesame Street. In various states, there were proposals ranging from public provision of universal kindergartens to the provision of universal preschools. At the same time, going against such proposals, there were beginning to be public arguments against the special necessity or utility of preschool education for children.

-- This study was undertaken during a period (1971-1972) in which a half-dozen different Congressional bills for a national system of day care were under discussion. In the year of study, one day care proposal was passed by both Houses and then vetoed by the President. Other bills, modifications of the earlier passed bill, began moving through the Congress.

-- There had been a year since the decennial White House Conference on Children and Youth had met and had made heated claims about the needs for public support for child development. The White House Conference, as had the Joint Commission on the Mental Health of Children before it, called for a system of "advocacy" for children at all levels of government. During the year of the study, pilot projects for child advocacy were funded by Washington for the first time. Outside Washington, a Children's Lobby was formed as a national organization to stimulate government activity on behalf of children.

-- There had been about a decade of rising questions about the rightness or wrongness of schools for children. A significant part of the nonfiction bestseller list offered exposes of schools or advocacy of fairly radical solutions to schooling ranging from more openness to de-schooling society.

-- This was a period in which the question of utility or efficacy of government categorical service programs to solve human problems was more and more coming under open question, and in which both the Republican and Democratic leadership was expressing serious interest in income redistribution schemes as an alternative to categorical service programs.

-- There were rising concerns about school financing. Local bond issues for school construction were failing about 50% of the time. There were rising protests about local property taxes. There was a proposal by the Administration to refinance schools through the federal tax system.

-- There was considerable confusion both at the local level and at the federal level about an historical accumulation of federal programs for children. The number of programs amounted to 222 according to the count of the Appalachian Regional Commission. The feeling was that the sheer profusion of these programs was creating serious management problems at the federal level and confusion at the community level. There was a strongly felt need for coordination or integration of programs of service to children.

-- Probably because of all of the factors just listed above, the study was undertaken at a time when a number of comprehensive studies of policy and programs for children were being proposed. One study, mounted through the National Academy of Sciences under the auspices of the Office of Child Development, went on concurrently with the present effort. Toward the conclusion of the present effort, another study was getting under way sponsored by The Carnegie Foundation, to try to form an overall view of public programs, public issues, and public concerns about child development.

The above discussion was an attempt to summarize some of the terms and frame of reference of the study. In the contexts just discussed, the study attempted to base itself in scientific data on child development and existing project evaluation data. It sought to sift those data in order to try to form some judgment about what might be the best course for federal program planning to take in the next few years.

In the next section, we indicate briefly the coverage of the report.

Plan of the Chapters

Part I, Goals and Standards of Public Programs for Children, is concerned with a review of data on intervention programs in childhood. Part of the work of this section is an attempt to arrive at an adequate definition of "disadvantage" or, more properly, those kinds of factors in childhood for which federal program intervention seems warranted. Part of the work of this section is to review the kinds of scientific data that might justify and direct government intervention on behalf of children.

> Chapter 1, Purpose and Design of the Study, the present chapter, is designed as an introduction to the study and as a discussion of our approach. A part of this chapter, the text to follow this section, introduces the notion of discrete public purposes as determinants of the larger goals of federal programs for young children.
>
> Chapter 2, The Evolution of Public Programs for Children, briefly reviews the history of American public programs on behalf of children. The discussion is organized around what appear to be continuing public interests in the preparation of children to assume a vocation, in the social and political assimilation of children into a unified society, in labor regulation, and in offering protection or insurance against certain kinds of crises of childhood. The last part of the chapter then attempts to develop some definitions of "disadvantage" in childhood according to the several different criteria that now appear to be in use.
>
> Chapter 3, Critical Periods and Early Experience, discusses the scientific evidence now held to offer arguments for early intervention in human development. One line of scientific evidence offering a kind of counter-claim against the need or possibility of environmental intervention in the early years is the hereditarian argument which says that IQ is fixed by genetics so that compensatory education programs designed to raise the child's IQ must fail. Of the importance of this argument, the latter part of Chapter 3 reviews the evidence bearing on this.

Chapter 4, Prediction from Childhood Characteristics to Adult Characteristics, reviews the data that suggests connections between various significant events and circumstances in early childhood to outcomes in late adolescence or adulthood.

Chapter 5, Goals and Standards of Programs for Education, Child Development, and Family Intervention, reviews existing measurement indices available for the evaluation of programs for children. The chapter is primarily concerned with the four major kinds of intervention on behalf of the child and his family to be discussed in Part II. It reviews existing evaluation instruments relevant to programs in early education, grades K-3, preschool programs, day care, and family intervention.

Chapter 6, Health Care for Children: Needs, Goals and Standards, offers a discussion of the health issues involved in intervention on behalf of children that is designed to parallel the discussion of psychological and family intervention in the chapters above. The chapter begins with a brief review of existing needs for health care as identified in the medical literature; it considers needs for availability of care; and, finally, it discusses the issues involved in setting up goals and standards that might guide health programs.

Part II, Review of Evaluation Data for Federally Sponsored Projects for Children, consists of a set of five chapters reviewing project evaluation data in the five major modes of intervention in child development. The intent of each chapter is to attempt to identify from evaluation data the approaches or kinds of approaches that seem most promising for future development.

Chapter 7, Early Elementary Education, reviews the findings of evaluation studies of federally sponsored early education projects for children. These are the compensatory education projects provided for under Title I of the Elementary and Secondary Education Act; Follow Through; the national network of Research and Development centers; Performance Contracts experiments, etc.

Chapter 8, Preschool Intervention, reviews existing evaluation data for preschool projects of the sort now implemented under Head Start.

Chapter 9, Day Care, reviews what is now known about the influence of day care on child development. This chapter reviews the effects of day care when there is intervention in the age range from 0 to 3. The assumption is that the possibilities of developmental day care at ages older than 3 are given to us approximately by the data on efficacy of preschool and elementary school intervention at later ages -- data that are reviewed in the chapters above.

Chapter 10, Family Intervention, reviews evaluation data coming from projects in parent education, parent training, family therapy, and the provision of social services.

Chapter 11, Health Care, reviews project data arising from evaluation of health care projects for children.

Part III, Recommendations for Federal Program Planning, includes a series of three chapters directed at future program management. Two chapters make recommendations about the direction services to children might take. The third discusses research on, and planning of, federal programs for children.

Chapter 12, Recommendations Regarding Preschool and Day Care Programs, examines the bases for present and proposed preschool and day care programs, and makes recommendations to optimize their utility in terms of these bases.

Chapter 13, Recommended Emphases in Programs for Children, offers more general recommendations for planning for services on behalf of children.

Chapter 14, Comments on Future Analysis, discusses a possible organization of research work in the future that might provide for a useful input into program management and program planning. It then attempts to identify some lines of research and analysis that might improve the planning of future programs for children.

The Concept of "Disadvantage" in Childhood

This study was responsible for an analysis of federal programs for children aged 0-9 who are generally characterized as disadvantaged. The earliest question that confronted us, one that proved not easy to answer and one that persisted for several months into the development of the project, was the question of exactly what is meant by 'disadvantage' and what children are designated by that term. We went through a series of stages in our thinking about the problem and it seems worthwhile to trace through these stages.

A first step was the fairly easy recognition that as the term 'disadvantage' is now used among participants in the discussion, it applies not to one kind of child but to several. Furthermore, for any child so labeled, disadvantage may refer to not one problem but to several possibly coexisting problems that may surface in the health, education, or family circumstances of the child. The problems of children tend to be co-related. That is, if you find a child with one serious problem it is quite likely that he will have others. Because problems tend to clump among certain classes of children, it has become common to try to characterize a kind of modal child as representative of disadvantage. Commonly, in public discussion there is a stereotype of the disadvantaged child as either an urban black child or else a poor child. The stereotyping is then usually vaguely undone by arguments that programs for disadvantaged children should be "comprehensive", with the possibility of multiple or varying intervention. Usually, comprehensiveness has not been well defined, well specified, or well planned.

If we read accounts of the problems of children, if we look at Congressional testimony, we see that there are aspects of disadvantage in childhood that are not well represented if we think only in terms of the average black child or the average poor child. As people portray disadvantage, the term can encompass children growing up in isolated or special environments in this country -- Appalachian children, migrant children, and even to some extent, rural children. It includes Chicano and Puerto Rican children or, more generally, bilingual or bicultural children. It includes children who are abused and neglected; it includes children who are malnourished or ill, who are at risk medically, or who suffer from a number of handicaps. Not all the children so designated are either poor or black. For the poor or the black, not all the disadvantages are disadvantages of the modal child.

The second step in our thinking led us to posit five standards under which children are today identified as disadvantaged and in candidacy for help from intervention programs. The five standards are:

Income. Some children are identified as targets for government programs because they are poor and their poverty is associated with known high risks of health, family circumstances, and education.

Ethnicity. Some children are identified as in need of government intervention because of ethnicity factors at least partially independent of poverty. There may be a need to clear up explicit or implicit discriminatory factors in schools and other institutions that are unfavorable to the child. Because ethnicity is often associated with cultural deviation, there may be a need to make programs more flexible to allow for different languages or life styles.

Home Environment-social class. Some children are identified as targets for programs because of neglect or abuse in the home. When neglect is clear, the case for intervention is generally not argued. A variety of arguments in existence today hold that family environments that may or may not be characteristic of social class differences in child rearing amount to neglect or understimulation of the child, and may be cause for intervention and attempts at change.

Crisis. Some things that happen to a child in the early years are seen as a crisis to the child and as justification for a need for intervention, either on grounds of compassion or else on grounds of later benefits to society. A variety of disease and handicapping conditions fall into this category.

Equity. A fifth standard of disadvantage exists when the circumstances of a child are such that what are regarded as normal and essential services are not brought to him. There is now an argument on the basis of equity for state control over school expenditures because local control of school expenditures bases itself upon differing property tax bases, and thus provides differing expenditures from one locality to another for the education of children. Other kinds of equity issues arise for isolated rural children, who now cannot participate in normal school and health care arrangements.

The primary purpose for advancing five standards is our belief that only by the use of these five standards will one locate all of the children now designated as disadvantaged children in a variety of public discussions. The standards are "correlated" so that children located by one standard would usually also be located by other standards. In recent legislation, poverty has been used as the criterion of eligibility and thus is in effect the proxy for all standards. But the dangers of working with one kind of definition are that one underestimates the number of children reasonably eligible for government services and, for any child selected, one stereotypes or "averages" his problems with those of others. The result of this process is that one may fail to define the complete spectrum of kinds of problems and kinds of relevant services that may have to be taken into consideration.

However, a third stage in the definition came, finally, when we considered the restricted use that is now made of each general kind of standard. Consider the standards just set forth. The application of each standard is restricted by unexpressed considerations. We customarily do not regard all poor children as, ipso facto, disadvantaged--only at being at a greater risk of disadvantage than are the non-poor children. We hold ethnicity to be an issue requiring some federal intervention only in some cases, not in others. America still has a large number of distinguishable ethnic subgroups. The great majority of these ethnic sub-groups are generally not considered in need of intervention on their behalf. Only some are. Why? If we apply the standard of equity, we see that there are limitations. Not all the goods and benefits that might be given to a child are sources of disequity. Only some are. We do not hold that the government should equitably provide all children with color television sets. We do not hold that the government should equitably provide all children with summer camps. What discriminates those differences between children's circumstances that are disequities from those that are not?

We finally have come to believe that there are some implicit public purposes governing the establishment and maintenance of public programs for children. Certain aspects of children's life, circumstances, and development are of interest in a public sense, and other aspects are not. What characterizes and guides the historic development of public intervention programs on behalf of children is a perennial concern for the public purposes.

On what evidential basis can the existence and nature of these public purposes be demonstrated? In our own thinking, they arose from two sources: (1) from the attempt to analyze various incomplete and unsatisfactory statements of goal and purpose of a variety of programs for children, and the attempts to understand the term "disadvantaged"; (2) from a consideration of the historic development of public programs on behalf of children, particularly a consideration of the arguments and issues that have historically come up again and again.

The four continuing public purposes would seem to be these:

(1) To see to it that any child learns and develops in such a way that he can take up some reasonable vocational or economic place in society.

(2) To provide for "political socialization" in the early years; to see to it that normative standards of American life, patriotism, a conception of himself as related to society, is instilled in the child as he grows up.

(3) To regulate labor: to develop public programs for children that will (a) restrict the use of children as labor; and (b) provide care for the child to release the parents for the labor market.

(4) To provide help for the child in certain kinds of crisis situations--either to provide crisis insurance for children on a compassionate basis and/or to intervene in childhood crisis on a calculation of ultimate benefit to society.

Public Purposes and Programs for Children

The best way to try to provide for a demonstration of these continuing public purposes and to elaborate and exemplify them would seem to be through the history of American intervention on behalf of children. The first part of Chapter 2 gives a brief historical discussion of the development of programs for children; the discussion is organized according to what are conceived to be the four public purposes. At least one historian, reacting to the text, has argued that there is a basic falacy in the chapter's "instant history". There is the fallacy of trying to use history to interpret the present. We plead quilty, but argue that we have been trying to avoid another and countervailing kind of fallacy--the fallacy of using present rhetoric to understand the present. Most of our recent initiatives for children, characterized by a relatively new rhetoric about "disadvantage", "child development", "equality of educational opportunity", etc., would seem to be in principle or in practice outgrowths of a long, organic development of government intervention on behalf of children.

The notion of public purposes is fairly central to the analysis of programs undertaken in this study. In our view, it is central in any reasonable conception of what federal programs do or what they should be expected to bring about. Whether we have arrived at the right set of public purposes is not critical for the argument. There is no sure way to demonstrate a set of continuing purposes other than an analysis of definitions, historical trends, what programs seem to be aimed at and what they do not seem to be aimed at. It is not critical for the analysis that there be a kind of public consensus about the value of the purposes, or the need for any particular implementation of a purpose at any given time. What is essential in the argument is that there is some set of issues which people regard as generally reasonable grounds for action on behalf of children, with the specific extent and form of the action negotiated among various contending parties.

The value of a conception of public purposes lies in these considerations:

1. It suggests that the purposes of public programs are not, have not been, and probably cannot be a maximization of child development in all conceivable ways. Indeed, the very notion of a maximization of child development in all conceivable ways is impossible of exemplification. A child can grow up learning a marketable skill or he can grow up not learning a marketable skill. It is in the public interest to see to it that he learns this skill. A child can grow up with one set of attitudes about his relationship to society, or with a number of other attitudes. Public purposes dictate that some kinds are less favored. There will be differences among children, and children may be made unhappy by some of those differences. But the existence of a difference, or even the existence of some reasonable degree of unhappiness, is not an ipso facto designation of a need for public intervention on behalf of a child.

One can exaggerate the ruthlessness or the selectivity of public purposes regarding children. Obviously, public purposes for children will be sympathetic to, compatible with, or not impossible for people. The point worth emphasizing is that there is a difference between what can be conceived to be good or fulfilling or optimizing for children, and what will usually be regarded as a reasonable basis for intervention on their behalf. There are some arguments today that schools have, or should have, the mission of total "cognitive growth" or "cognitive development" of children. Disregarding questions of the definition or feasibility of such a goal, it might be suggested that there is another kind of restriction to be addressed to this argument, the question about whether this kind of goal is in fact the goal dictated by the public purposes.

2. A second utility of the formulation is to suggest that the generic and heterogeneous notion of "disadvantage" in childhood is fundamentally only to be understood in terms of shortcomings in the expression of public purposes for selected groups of children. Not all differences among children are disadvantages. Some are. Those differences that seem to run counter to the fulfillment of public purposes are regarded as "disadvantages", "deficits", "deprivations", or "disequities", and public intervention will move to correct them.

3. We have come to believe that throughout history the implementation of these purposes with regard to the development of children has been arranged through progressively evolving "contracts" involving families, public institutions at various levels of government, and various kinds of professional disciplines. There has been a division of labor in the care of the child. During American history, these contracts have been continually renegotiated with shiftings of responsibility for various aspects of service to children. The stimulus for this renegotiation seems to have been the industrialization, urbanization, and integration that have led to changing relationships between families and social institutions with respect to provisions for children.

4. There has been a deposit of history. The previous development of public programs on behalf of children has led to a large number of fairly fixed terms on the present social scene. New professions have been created--the "whole child" professions of pediatrician, social worker, and teacher, developed in this century. Public schools have been extended to serve all children. A complex system of legislation and programs has been erected, amounting to some 222 different federal programs and some unknown number of arrangements in the state and local governmental levels. We have professions, institutions, and norms and values all highly developed. It is important to understand this complex development because it establishes the matrix within which any new program idea or program resource must try to survive. There is a way of talking about new initiatives in federal programs for children today that treats them as 'inputs', basically new and independent and discrete variables that are applied from the source to the child. The recent history of inception of government programs for children suggests that something much more complex is involved. There is a great tendency for an elaborately developed caretaker system to "assimilate" new interventions on their own terms. For example, it can be argued that Head Start, developed and set forth on a number of sophisticated conceptions about what kinds of interventions might help children, was ultimately transformed at the project level into another instance of the standard --known, accepted, middle class preschool for children. Interventions like Title I of the Elementary and Secondary Education Act, stimulated by the desire to produce innovativeness and new program ideas in school systems around the country, may very well have been seen as the provision of resources to provide "more of the same" in many localities.

Probably, the real need for some conception of public purposes comes at that delicate point where one tries to convert research data, theories about human development, or surmises about efficacy into some kind of coordinated, orchestrated system of intervention on behalf of children. In the central section of this study, where we are concerned basically with a review of child development evaluation data, little or no use is made of the scheme. Where the scheme does enter in is at the beginning of the report, where we try to define who are the disadvantaged; and toward the end of Part 1, where we try to make an estimation from existing data about future possibilities of program development. The issue of public purposes then comes primarily in the rationalization of public programs for children, and seems necessary to it.

Chapter 2: The Evolution of Public Programs for Children

Summary

Four major purposes have been continually pursued in the formulation of programs designed to affect our nation's children. They are:

- preparation of children to assume adult economic roles.
- assimilation of children into a socially cohesive polity.
- partial regulation of the labor market.
- provision of services and economic support for children at risk.

Responsibility for fulfilling these public purposes has been distributed among family and social institutions (private facilities, local, state, and federal government) through implicit "contracts" that have changed through time.

From the colonial period on, increased public responsibility has been **triggered** by the strains of industrialization, urbanization, and immigration.

With regard to the preparation of children to assume adult economic roles:

There has been a shift from family and private auspices towards public auspices and, since 1850, a steady trend towards more publicly-sponsored schooling for more children.

The trend towards schooling has been supported by public beliefs that the public schools would: (a) adjust the child to the work roles of an industrial society; (b) clear the streets of unemployed youth; and (c) by teaching skills, bring all children into economically productive positions.

Recent debate has focused on the management of this public responsibility. Should the government, through schools, bring about equal opportunity for all economic roles?

With regard to the assimilation of children into a socially cohesive nation:

With the coming of public schooling, there has been a persistent belief in the function of the schools to "Americanize" children.

Arguments for this function have been historically prominent whenever large waves of immigrants have come into American society, particularly when their foreignness or ignorance of American traditions have been perceived as socially disruptive. In the 1960's when the first vigorous attempts were made to include blacks and Indians in the vision of a unified American culture, debate again has raged about the function of the schools in assimilating these formerly excluded groups.

The assimilative function of public schools is real and rational; public funds are reasonably used to re-create and strenghten an American unity through efforts designed to emphasize homogeneity. Current events demonstrate the problems of maintaining unity in non-homogeneous societies. Schools are one instrument of a more complex assimilative solution in the future.

With regard to partial regulation of the labor market:

Historically the most salient issue has been to regulate and restrict child labor, while simultaneously creating a role for children as students. Today compulsory attendance and the obligation of the government to protect children from abuse are recognized and enforced (with few exceptions).

Public policy toward children has recently been influenced by adult demands for day care and preschools to create jobs for unemployed teachers and professional care-givers, and to create child care arrangements freeing mothers for work. Since 1967 attempts have been made under WIN child care and state and local day care to encourage mothers of families on AFDC to get jobs. There is less consensus on the government role in supporting day care for other income groups.

With regard to public care for children "at risk"

"At risk" categories of children have always been subjects of social concern and responsibility. Many kinds of risk have been treated by public action for centuries: physically handicapped; diseased; emotionally disturbed; mentally retarded; orphans; children of disabled or absent parents; illegitimite; destitute; neglected; abused; and antisocial or delinquent. Recently two new categories have been added--children of minority groups and of migrant workers.

The most prominent trends in care for children at risk are: (1) a progressive extension of services to more children; (2) a progressive enlargement of the proportion of children included as "at risk"; (3) an increase in differentiated categorial services; (4) a progressive transfer from private to local, and then to state and federal responsibility; (5) urban sections taking the lead in the process of development.

Disadvantage and public policy for children

In the 1960's public policy for young children, especially at the federal level, became almost synonymous with the solution of the problems of the "disadvantaged child"

Several currently used criteria of disadvantage are: income, ethnicity, social class and home environment, crisis and equity. A weighty body of evidence and speculation attempts to define the boundaries and partitions of disadvantage, thus making this concept useful for policy planning. Yet none of the categories seems wholly satisfactory in terms of logic, clarity or validity of evidence.

Current evidence on disadvantage cannot structure and support policy recommendations. Disadvantage is not a simple phenomenon, yet it has often been misused as a substitute for careful analysis of different meanings of the term. In addition there is danger that the problem is likely to be regarded as purely a matter of individual maladjustment to society.

It is proposed that disadvantage be considered as a problem of imbalance between social demands and provisions on the one hand, and of family capacity on the other. The most baffling kinds of disadvantage in childhood right now probably occur at the margins of contracts between society and the family. The leading edge of development of public programs for children might better be seen as an effort to more solidly implement public purposes in child development through change in public institutions, or alternatively through support of the family's care of children.

Chapter 2: The Evolution of Public Programs for Children

In the course of our study of past and present institutions and programs designed to affect our nation's children, we have identified four major purposes continually pursued in the formulation of public programs for children. They are as follows:

1) preparation of children to assume adult economic roles;

2) assimilation of children into an American community of shared ideals and values;

3) partial regulation of the labor market including (1) the gradual exclusion of child labor, and (2) providing supervision of children in schools and in day care arrangements to allow parents to work;
4) provision of services and economic support for children in crisis or seen to be at risk.

We have also recognized the existence of implicit, changing "contracts" dividing responsibility between the family and social institutions for the fulfillment of these purposes.

In the following section we will trace the evolution of each of the four public purposes from the colonial period to the present, showing the changing relationship between these contracting parties. The trend of increasing intervention by the public sector of society in the fulfillment of each purpose is triggered by the inadequacy of an earlier, less formal system to hold its own under the strain of industrialization, urbanization, and immigration. Ushered in with the complexity of modern society is greater public participation towards fulfillment of the stated goals. As public involvement shifts, the definition of the target population becomes an issue in public debate. While the populations treated by public policy have not changed significantly over time, the terms used to describe their conditions have changed.

In recent history "disadvantaged" has been a common term applied to children in need of help from society. After the historical review we will discuss the current conceptions of the meaning of disadvantage as they are used in legislation and scientific and popular writing.

We will conclude by relating trends from the history of these four public purposes to our task of evaluating and contributing to the formulation of public policy for children.

How Has the Public Sector Participated in the Preparation of Children for Adult Economic Roles?

The public role in preparing children to assume adult economic positions has changed considerably since the colonial period. Americans have witnessed both an alteration in the conception of public versus private auspices, and, since at least 1850, a trend of increasing public investment in vocational preparation.

There are three related variables in the process of matching the skills of the labor force to the needs of the society: the child, the family, and the industry. In the United States primary attention has focused on the adjustment of the child to the work roles of a rapidly industrialized environment. The family has served to mediate between the will of the young and the demands of the work environment by fostering attitudes, behavior and basic skills conducive to successful adjustment to adult work. Where the family has not fulfilled this expectation, other institutions increasingly have intervened.

In American history there have been several broad modifications of practices geared to prepare individuals for work.

The Colonial Period

The earliest notion of public versus private responsibility was imported to the colonies from England. While the family was viewed as the basic unit for preparation for adult economic and social roles, any child not adequately provided for in his own household was supported and trained by the community. (Typically the local parish was the agent to dispense relief to the poor and to arrange foster homes for the dependent.) These measures were regarded as fundamentally public although from our modern vantage point they lack the formality of legislated public policy.

There was no expected sharp differentiation between preparation for adult economic and social roles. No matter where training in skills and in morality took place, it was arranged by the family and open to community supervision and responsibility (Bailyn, 1960).

In this time before industrialization, the roles for which a child could be prepared were limited. Women were expected to raise children and to run households, usually within the social class in which they were reared. Men were trained to be farmers, merchants, artisans, craftsmen--and a few to fill the professional roles of doctors, lawyers or ministers.

Children received their earliest education at home or in the home of a neighbor. The poor continued their training in apprenticeships, indentures, or in domestic service if female, where colonial law required the master to teach his charge reading and writing along with a trade. Formal schooling varied. Many towns, especially in New England, employed a school master whose salary was paid by the town or parish (Bremner, 1970). In urban areas a number of individuals provided specialized learning, often of a vocational nature (e.g., navigation, bookkeeping); throughout the colonies, tutors provided home education.

Increasingly apprenticeship became a work contract rather than a more formal learning experience. And by 1740, the blend of private and public community protection of and training for the poor and the homeless was no longer adequate. The value of family-centered social remedies persisted for the better part of a century while the practice was in transition.

Immigration and widespread population movement increased the strain on traditional social relationships. As the ideal of shared family-community responsibility broke down, commitment to formal educational institutions increased. Missionary schools and other philanthropic activities developed to relieve this strain on communities and families. Free instruction was arranged for those pauper children whose parents were willing to testify to their inability to provide schooling by other means (Bremner, 1970).

The Nineteenth Century

By 1820 apprenticeships played a considerably less important role than one hundred years before. The individual was left to develop his skills privately or not at all. Families continued to socialize the young to the values necessary for successful integration into the economy, but were less likely to teach specific skills. The rich could be tutored or supported in private schools. The poor participated in schooling irregularly at best and many of the young took places in a growing industrial labor force.

Where there had been an increase in mechanization, many jobs called for unskilled labor; where industry required skills, individuals without sufficient preparation were trained on the job or simply not hired.

Throughout this period when preparation for work was viewed as a private responsibility, public policy was designed to prevent excessively unfair practices from undermining the competitive system. Monopolies were condemned. The public supported a variety of philanthropic ventures but did not control them. The public role was to promote private enterprise and referee disputes between private parties. In short, the policies were aimed at regulating the adult labor market, not at preparing the young for future productivity.

The influx of unskilled immigrants was increasing dramatically. These people were not equipped with marketable skills to teach their offspring. Neither did they have the means to send them to schools. Urban centers were experiencing serious disorganization. Poverty was seen to be shifting from an accepted, often transient phenomenon, to a socially threatening permanent condition. Accompanying chronic poverty came unemployment, rising crime rates and juvenile delinquency. If by the early nineteenth century these circumstances were seen as threatening to social stability, by mid-century the hordes of poor immigrants had exacerbated an already serious problem to an unmanageable level of severity.

Alternate methods of dealing with the "dangerous poor" were employed from the 1840's. Natives of more secure means would escape to neighboring towns or to the country (Schultz, 1971). There were attempts to resettle poor families; where children had been separated from their parents by death or abandonment, missionaries had to concentrate on children alone. The New York Children's Aid Society, founded in 1853, rescued slum children from a corrupting environment and shipped them West. Even if the parent generation was lost their children could be redeemed as Americans (Bremner, 1971).

Children matured in an environment where charitable relief was awarded the "worthy" poor while "unworthy" paupers were doomed to work houses, reform schools, debtors' prisons and the like (Schultz, 1971; Rotheman, 1971).

In the long run, since these strategies did not alleviate the predicament of an urban culture laden with poverty and corruption, public attention focused hopefully on public education (Katz, 1968).

1900 to the Present

Although compulsory attendance laws had been passed earlier, between 1880 and 1917 they became universal. Concern for urban industrial disorganization intensified during these years. Public schooling could be a partial remedy for urban disorder in two ways. First, it would keep unemployed children off the city streets. Second, if schooling could be made relevant to economic needs, it would be a means for stabilizing the social order of industrial America.

This last issue became the basis for a new contracting of responsibility for the preparation of children for economic roles. In addition to the inputs of families with young children and industry itself with older ones, demands would be made on the public sector to provide an economically relevant education to all American children.

By the 1880's the Massachusetts school system was already involved in debate about manual training. Businessmen, philanthropists, pedagogical reformers and technical education enthusiasts all joined in criticizing traditional schooling. For differing reasons their support coalesced around manual education. Manufacturers and businessmen promoted the teaching of industrial skills with an eye toward running more efficient plants. Pedagogical reformers sought to diversify and invigorate classroom teaching. And social reformers sought a practical means to teach moral discipline: boys were to generate good work habits and girls the values and techniques of homemaking.

Technical education courses, sophisticated industrial shops, simple woodcarving rooms, school kitchens and gardens, sewing and drawing and children's play activities all received support as part of the manual training movement (Lazerson, 1971). As illustrated by the words of Louisa Parsons Hopkins of the Boston School Committee, these activities were not valued primarily for their economic relevance: "The exercises of manual training are a means not of physical and intellectual but of moral culture."

By the early twentieth century large numbers of students in the public educational system were exposed to hand learning. While exposure grew to be widespread, satisfaction did not. Manual education neither altered pedagogical practices as hoped nor proved to be economically relevant.

Consequently, those committed to manual education for industrial efficiency turned to vocational education. By 1900 the high school population was beginning to add to its predominance of middle class students preparing for social and economic leadership, "children of the plain people". With apprehension that this growing number of immigrant and native working class children would change the traditional function of the high school and with concern about the waste of human resources of drop-outs, Americans turned to vocationally oriented programs. This new mode of schooling was designed to provide a direct route to economic integration for common people with modest abilities and aspirations. Most middle class youth would continue to prepare for college, homemaking or commercial or secretarial position.

This trend toward schooling for job placement dominated the early part of the twentieth century. In 1906 the National Society for the Promotion of Industrial Education was formed and promoted by a coalition of the American Federation of Labor, the National Association of Manufacturers, and influential agricultural organizations and educators. By 1910 vocational education programs were operating in twenty-nine states. The Society argued, however, that only federal aid could accelerate the spread and standardization of programs. Their aim was ultimately to legitimize vocationalism as an integral part of public education (Grubb and Lazerson, 1972).

The advocates of this movement saw potential benefits to individuals and to American society. Opportunities for upward mobility, it was believed, had been severely curbed by industrialization. The fragmentation and specialization of jobs meant that industry only hired already skilled workers or unskilled workers for routinized functions. The viable skills were too complicated to learn on the job and individuals were no longer expected to learn them independently. If job skills were learned in school, workers would have greater economic opportunity and stability. Society would not be left to support such large numbers of dependent unemployed -- nor be threatened by the vices of the unemployable.

Businessmen and politicians looked on German part-time vocational schools as a cause of her growth and importance in world markets (Grubb and Lazerson, 1972). And in 1917, two months prior to the entry of the U.S. in World War I, the Smith-Hughes Act endowed the states with federal aid for vocational education.

Three kinds of schools were to receive these federal funds: 1) all day schools allowing one half of each day for "actual practice for a vocation"; 2) part time schools for young workers devoted to extending their vocational knowledge and civic intelligence; and 3) vocational education evening schools for adult workers. The schools were to spend these funds to plan programs in industrial and trade education, in agriculture and home economics.

The Smith-Hughes Act was the most important federal legislation in education, since the Morrill Act of 1862 (higher education-land grant colleges) and until the National Defense Education Act of the late 1950's. This federal investment was geared to initiate and support state action rather than to cover the full cost of vocational education. All states met the formula grant requirement for dollar-for-dollar matching, and some invested more.

Actual implementation of vocational programs was limited for a variety of reasons. When federal aid was near its peak in 1924 only 6.7% of high school students were enrolled in industrial and trade courses. By 1930, 13% of rural boys participated in agricultural education, 4.6% of urban boys were in trade and industrial courses, and 4.1% of girls were in home economics courses (Grubb and Lazerson, 1972).

The programs were costly and more often than not part time. Many considered them to be second-class education. And although there was an ideal that all children should enter school and have access to these vocational programs, the ideal was never attained. Indians and blacks were excluded from the ideal. For economic reasons many poor were never in school long enough to enter secondary level curricula.

Another critical failing of vocational programs centered on the choice of equipment. Most of what the schools bought was outmoded. As a result, in many instances students were limited to learning behavior appropriate to jobs in industry without the corresponding skills. Students were separated into programs suited for broad occupational categories: blue collar, commercial/secretarial, or college preparatory. Within forty years American industries reclaimed the training function they had handed to the schools (Cremin, 1961).

While the vocational education movement concerned itself primarily with secondary and part-time education, it carried vast implications for the education of young children. The acceptance of separate vocational programs heralded the establishment of a lasting system of curricula differentiated by anticipation of students' future occupational roles. It demanded that elementary schools begin grouping and selecting children for their future curricular enrollment. This represented a distinct departure from the earlier common school ideal. Common schools of the late nineteenth century were created to foster American identity and equal opportunity through an educational experience shared by all classes and national subgroups. To diversify the curricula to meet economic and vocational needs was to contradict this principle directly.

In the context of these two conflicting goals for schooling -- a common learning experience versus segregation by future economic role -- equal opportunity took on new meaning. The contract became one of state obligation to provide education for all students commensurate with their abilities and anticipated occupations (Grubb and Lazerson, 1972).

If youth were to be separated in secondary schools by ability and aspirations, there would have to be some earlier objective and efficient means of directing them into the most suitable vocational curriculum. To facilitate this selection process, educational testing became widespread. Virtually non-existent before World War I, testing had become a major activity in urban school systems by the 1930's. By that time, schools had become firmly established as the prime agency for selection of future economic and social roles.

As greater sophistication in testing technique and in interpretation of test results has developed, the practical conception of equal opportunity has been modified again. Since equal right to public education does not insure equal opportunity for social and economic status, concern has focused on the problem of unequal outcome (Mosteller and Moynihan, 1972).

In the case of young children this line of reasoning has led to a drive for more equal achievement in the early grades. The central assumption is as follows: if early achievement is more equal, access to secondary curricula and to adult occupational and social status will be more equal.

Despite the fact that the assumption is a widely disputed one, school systems continue to administer achievement tests on this basis. We have limited evidence to show a positive relationship between early school success and economic success in later life.

The most suggestive kind of correlation discovered thus far is between number of years of schooling and occupational status. It may follow that children with higher achievement in the early grades are more likely to stay in school for more years, and, as a result of extended schooling, have greater economic mobility (Jencks, 1972).

In the 1960's the War on Poverty resulted in vigorous legislative activity at the federal level. The new strategy applied to children was that of compensatory education: extended or intensified schooling with children judged to have experienced early environmental deprivations. Title I of the Elementary and Secondary Education Act (1965) and Head Start and Follow Through with origins in the Economic Opportunity Act (1964) are the major examples. While it would be a gross overstatement to say that the principal intention in enacting this legislation was to provide children of the poor and ethnic minority groups equal access to all occupations and to equal economic status with all other Americans, it is the only federal legislation for children from this period which might alter the traditional pattern of preparation and selection of children for future economic roles.

It is now clear from research efforts that these programs have not significantly improved school achievement for children by the mid-elementary grades. Consequently there is no reason to assume that compensatory education programs will result in equalized opportunity for adults.

Conclusion

In the colonial period preparation for economic roles was arranged primarily by families and overseen by the community. The change of work roles brought about by industrialization, the population shifts to urban areas, the influx of unskilled immigrants and emancipated slaves combined to create such tension and disorder in cities that public schooling was looked to for some relief. It was hoped that compulsory schooling would clear the streets of unemployed youth, and, by teaching skills, help to integrate all children into economically productive positions. If this strategy was successful, social order would be more stable.

The contracting of a major public responsibility in the preparation of children for economic roles is firmly established. Debate now focuses on the goals and management of this public responsibility. Current arguments hold that government should strive to provide equal opportunity for attainment of all economic and social roles wherever it exerts influence. Even so, among those who accept that goal there is much debate on the ways in which the public role should and can be altered to bring equal opportunity to fruition.

How have Children been Assimilated into an American Community of Shared Values and Ideals?

A variety of institutions in American history have had a primary goal of assimilating children into a society sharing a common identity and value structure. Most of these have been private ventures: family, church, philanthropic services, industry and mass media. The major[1] exception to the rule of private sponsorship has been the public school system. None of these assimilative forces has operated in total isolation from the rest, however, so that the line between public and private auspices is a blurred one.

Nongovernmental Sources for the Assimilation of American Children

Family. The American family has always carried primary responsibility for socializing young children, although this has been open to involvement by other institutions. As we have stated, the colonial family was both supported and supervised by the community; often the church served as a primary agent of the community.

During the nineteenth century the family's role as a socializer was called into question, especially around the issue of the inability of the families of the poor to adequately fulfill this function. In response to this, and building upon a trend in the colonial period, more formal means of socialization became prominent. Philanthropic service organizations, schools and asylums for deviants and dependents were looked to for supplementation. Although these institutions often stressed their "family-like" nature, the development of more formal socializing agencies sharpened the distinction between familial responsibilities and society's needs. The tendency, in terms of public policy, was to stress the importance of institutions external to the family. In the twentieth century this took the form of increasing the responsibility of the schools in the socialization of the young, a development marked by the adoption of compulsory attendance legislation by every state by 1918 and by the chronological extension of compulsory attendance to younger and older children (Cremin, 1961; Lazerson, 1971).

The church. In the earliest years of childhood the influence of the Church is filtered through the family as an integral part of childrearing practices. As the child grows older he can also be subject to more direct influence in the form of sermons and religious schooling. In colonial times the Church was regarded as an extension of the community and often provided educational services in the form of missionary schools, special sermons for the young, and in other less formal ways. Into the nineteenth century clergy often served as school teachers and authored textbooks. (Tyach, 1966).

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[1] The political process where candidates for public office and elected and appointed officials interact with the community has also had a socializing influence.

As denominational competition for membership increased, individual churches no longer represented the whole of the community. Denominations had to compete for adherents. While the impact of "volunteerism" on American religious development is complex (see Sidney Mean, 1963), one outcome was a tendency toward compromise around the issue of basic Protestant values in public education. Most schools reflected this approach; Bible reading, prayers, participation in religious holidays have been common (with regional variations) as the response until the Supreme Court Decisions in 1962-63 forbidding such practices (Tyach, 1970).

Even before the proliferation of compulsory attendance laws distinct national groups and religious denominations had established their own schools. Compulsory attendance promoted systematization of this practice for Catholics and other smaller minority groups whose followers could formerly opt for informal schooling arrangements.

Building on their historic commitment to church-based schooling, and in reaction to the Protestant orientation of public schools and to intra-Catholic conflicts, Catholics created the largest parochial education system. Other minority groups, most notably the German Lutherans, also created alternative schools dedicated to passing their cultural heritage on to their young (Cross, 1965).

Social settlements. In reaction to the sense that industrialization and urbanization were shattering human relationships and leaving some segments of American society in disarray, Jane Addams and others founded settlement houses just before the turn of the century. Their goal was to rebuild society by sharing their knowledge and ideals with the unfortunate slum dwellers of the nation's cities. While they implemented a variety of programs, education was always a primary instrument (Cremin, 1961).

They created kindergartens for the poor children whose mothers were considered inadequate to the task of moral and healthful child-rearing. They opened clinics, anti-filth societies, taught reading to illiterate working men, established boys' and girls' clubs to divert adolescent energy from crime to more positive endeavors.

Increasingly they pursued educational reform to broaden the focus of school programs to include training in hygiene, health and other matters relevant to the alleviation of urban disintegration. Jane Addams liked to think of her programs as "socialized education" with the assumption "that unless all men and all classes contribute to a good, we cannot even be sure it is worth having" (Addams, 1902).

The efforts of settlement workers to reform urban life were vigorous, and they had a direct impact on the introduction of new programs in the public school system, the establishment of the Children's Bureau and the creation of the social work profession (Cremin, 1961; Davis, 1967).

Industry. During the colonial period the prevailing expectation was that individuals would be socialized for their vocational and social roles within the family or through informal community means. As the problem of poverty and immigration became more prominent and as work tasks became more specialized, concern increased that families were no longer adequate agencies of socialization for integration into industrial, urban life.

Under these conditions industry had a dual role. Tasks for the unskilled were to be made simple enough so that they could be easily learned on the job. Industrial production was so organized that rural migrants and European immigrants could become rapidly acclimated and socialized to industrial work requirements. In the work environment they would not necessarily learn English, but they would learn work habits acceptable to their employers and to American society at large.[2]

But industry also demanded that individuals be socialized before starting work. With the expansion of public schooling and the extension of the hours and years of compulsory schooling came a more "Americanized" labor force. Schools were expected to teach individuals how to be Americans and how to work (Lazerson, 1971).

More recently the trend has been toward more active cooperation between government and industry, primarily through manpower and training programs as a means of meeting the problems of unemployment and underemployment.

Mass media. To most Americans the impact of mass media in fostering common values, attitudes and practices has been highly visible. Localities once limited to communicating with other groups solely by word of mouth or printed accounts were widely exposed to radio after World War I, movies by the 1930's and television after World War II.

Public Investment in the Assimilation of American Children

Schools have been the primary public institution geared to the assimilation of children into the American way of life, and they have received more emphasis and formal responsibility in that role as concern for social dislocation has increased.

Although the problems of urbanization have been complex, the arrival of white and black rural Americans and European immigrants in cities has frequently been the focus of fears for social stability (see Jacob Riis Revisited, 1968). Immigrant children seemed to roam the streets undisciplined, contributing to rising crime rates. Many immigrants did not speak the English language and retained ties to their homelands. Their traditional skills did not fit the needs of the urban industrial environment, and they were unable to teach their children skills and values they did not hold themselves. Basically, it was feared they would not identify with the prevailing American culture.

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[2] On the relationship between the organization of the work environment and socialization, see Gerd Korman: Industrialization, Immigrants, and Americanizers, 1967.

A variety of efforts evolved to overcome these problems, often initially undertaken through philanthropy, but increasingly becoming a public responsibility. Kindergartens, first sponsored privately, were introduced into public schools to afford "a much needed protection from the injurious street ... For those unfortunate children -- and they are many, who suffer from parental carelessness, indifference, ignorance or poverty, the Kindergarten measurably supplies what the home does not -- kindly nurture in the virtues and graces of a more refined and elevated democratic life, " as Superintendent Edwin Seaver of the Boston Public School System once stated.

The notion that socialization is better done in the school than in the home, along with decreasing need for children in the labor force, accelerated the movement for compulsory attendance legislation. But while all children were to attend school, they did not share a perfectly uniform experience. Some children attended parochial or other private schools. Ethnic and class residential patterns isolated some social and economic groups, and within some public schools students found themselves separated by ability, aspirations or social class. Despite these limitations, public debate continued to stress the importance of a common school experience to the Americanization of heterogeneous groups.

Manual education programs were designed to include values of industriousness and thrift. School social workers visited families, while education in civics became prominent (Lazerson, 1971). Schools were encouraged to transcend their traditional limitations and become all day neighborhood centers coordinating the larger work of Americanizing (The Immigrants in America Review, 1916).

According to Professor Ellwood P. Cubberly of Stanford University, the first task of education was:

> to assimilate and amalgamate these people as a part of our American race, and to implant in their children, so far as can be done, the Anglo-Saxon conception of righteousness, law and order, and popular government, and to awaken in them a reverence for our democratic institutions and for those things in our national life which we as a people hold to be of abiding worth. (Cubberly, 1909, p. 12)

What were children taught in school to enhance their "Americanization"? A study of nineteenth century textbooks shows that the most constant theme of textbooks was national unity (Elson, 1964). Children were presented with harsh stereotypes of immigrants, non-Protestants and American blacks.

> Each race and its subdivisions--nationalities--are defined by inherent mental and personal characteristics which the child must memorize. Individual personality is largely submerged in race and nationality. And these traits are used to determine the rank of each race and nation. (Elson, 1964)

The child was taught to admire past achievements of America but note of contemporary problems and reform movements was conspicuously absent. American social patterns and ideals were described in favorable terms. The United States was held up as the greatest nation in the world and one with few flaws. The specific description of American character found in most nineteenth century texts fulfilled a function not required in most societies where national character has developed over centuries without such confusing pluralism -- and is taken for granted (Elson, 1964).

World War I heightened this concern for a shared American identity. Woodrow Wilson told naturalized citizens in 1915 they could not "become thorough Americans if you think of yourselves in groups. America does not consist of groups. A man who thinks of himself as belonging to a particular national group in America has not yet become an American..." (Hartman, 1948; Higham, 1955).

While the stereotyping of the nineteenth century and World War I period has diminished -- especially as the newer immigrants have gained political power and been more upwardly mobile -- American school children were until recently still taught a homogeneous view of their society. Under the impact of the Cold War in the post World War II period the schools continued to stress the unified nature of America. While European immigrants were treated more sympathetically and were used to show the diversified heritage of this country, a report on minority treatment in textbooks in 1961 found Asiatics and blacks stereotyped and Spanish-speaking migrants slighted. "With extremely few exceptions," the report concluded, "photographs and other illustrations continue to show an all-White America" (Marcus, 1961).

It is possible that the Civil Rights Movement of the 1950's and the War on Poverty of the 1960's has precipitated a new phase in this assimilative function of the schools. This period was marked by the emergence of heretofore "invisible" minority groups with demands for social, political, and educational access. What this amounted to was an exemplification of the argument that the ideal of the melting pot--complete homogenization of individuals within American society--had not in fact been consummated (Moynihan and Glazer, 1963). To some extent, American society has proceeded forward ever since with an overt process of political and legal negotiation between "the System" and politically organized minorities. One can exaggerate the novelty of this. What is most marked about the recent period is the prominence of ethnic politics. Probably, at a covert level, ethnic politics has been an important component of American political negotiations for a long time.

But, with some public concession to the existence of a nonhomogeneous American society, there is presently an open question about the assimilative functions of American schools. The demands on American schools have by no means been limited to demands on educational functions. There have been arguments that the schools be required to provide bilingual education and that they be responsive to the existence of minority language communities in the society. There have been arguments that schools teach such things as black history and black culture. There have been arguments that schools be made "community-relevant". All this makes the assimilative function of American schools a matter of some interest at present.

It seems reasonable to believe that the assimilative function of the schools is real and rational, that public funds are reasonably used to recreate and strengthen an American unity. The question is whether the recent negotiations about schooling represent only an extended and somewhat tortuous phase of what should be a sustained drive to hold to the presentation of an ideal of homogeneity and complete unity. An alternative view would be that a sufficiently different organization of American society is now projected, an organization of negotiation among political subgroups, so that the schools should work towards a model of a different political ideal.

Admittedly, this is a somewhat speculative issue based upon a premise about schools' functions that is not officially in the charter of the schools, but there may be real consequences to the issue. Current events consistently demonstrate that it is hard to hold a nonhomogeneous society together; the present conflict in Northern Ireland between Protestant and Catholic elements is only one of a long list of intranational conflicts in the twentieth century. If American schools have served an assimilative function in the past, it is at least conceivable that schools might be one instrument of a more complex assimilative solution in the future.

Conclusion

In early American history assimilation was exclusively the responsibility of the family and of the surrounding community. The pluralism and integrity of the customs and values of each European sub-group was taken for granted. However, the pressures of a self-conscious movement to create a national identity during the time of industrialization and urbanization and the coming of a second major wave of immigration forced the issue of assimilation into public debate. No longer were such a diversity of values seen as a totally positive feature of American culture.

Those in favor of a more homogeneous American identity initiated a variety of measures to bring people of the melting pot together. At first these ventures were almost entirely private and philanthropic: settlement houses, religious groups, etc. The approach of World War I intensified sentiment for national unity and loyalty. Public leaders including Woodrow Wilson made public statements about the need for American patriotism. Compulsory attendance legislation was passed in each of the states, and public schools made civics courses part of their curricula. Textbooks were used to herald the achievements of popular American heroes and to reinforce ethnic and national stereotypes. Assimilation of the young had become a matter of such general concern that it would no longer be left to individual family preference and capability.

However, for some major racial groups, Indians and blacks, public policy served to isolate them from rather than to include them into the mainstream of American social and political life.

While by the time of World War I the public investment in the assimilation of young children was widely accepted to be in the public interest, it was not until the 1960's that any vigorous action was taken to include blacks and Indians in the vision of a unified American culture. Presently the debate centers on the conception of American values and customs. Are there a variety of cultures within the U.S. boundaries? The question is whether assimilation can proceed towards either an ideal of homogeneity or of pluralism.

Over the last ten years recognition of minority groups' contributions has increased and the plural character of American culture has been more accepted. The introduction of black history and culture courses designed to heighten students' awareness of both the African and American heritage of today's largest minority groups of school children is an apt example.

How Has Public Policy Acted To Regulate The Labor Market For Children?

Child labor has not always been viewed as a social problem requiring public and private intervention. Indeed, throughout America until the nineteenth century, there were few who believed that children should not work from a very early age. Public policy concerning children and the labor market can be viewed from two perspectives: those of the child and of the adult. For example, facilities like schools and day care centers might be used to prevent the abuse of a child in a factory, or they might serve to restrict competition between children and adults for jobs; they might also serve to enable the child's mother to enter the labor force.

Historically the most salient topic in terms of interest and extensiveness of treatment in the literature has been the movement to regulate and restrict the conditions and hours of children in the work force. This will be discussed in detail in this section. From the perspective of the child, the other important policy decision, made simultaneously with child labor policy, was to provide a primary and new role of "student" for children rather than the former role of "child-as-worker" through compulsory school attendance legislation.

Typically discussion of public policy toward children and the labor market has not gone beyond these two child perspectives; child labor and compulsory school attendance. It has not been looked at from the perspective of adults. Yet it is clear that child labor regulation and compulsory attendance at school has had significant implications for adults as members of the work force and labor market. Three important consequences have been:

a) It has decreased competition for jobs and hence affected salaries of workers in fields where children might be employed.

b) It has opened up positions as teachers, other school professionals (librarians, administrators, child guidance psychologists and guidance counsellors, school social workers, early childhood education specialists) and school-related non-professionals (janitors, teacher aides and paraprofessionals, school construction personnel, textbook publishers).

c) It has freed mothers who otherwise would have to spend all or most of the day taking care of children to enter the work force.

A brief discussion of this adult perspective will follow the treatment of child labor and compulsory attendance. Finally we conclude by examining the history of public policy concerning children and the labor market in order to see the changing contract between the child, the family and society over time.

The Colonial Period

Practical economic reasons dictated that children work in colonial America whether on the family farm, in a merchant shop in the city or town, or as an apprentice to a craftsman. Children from families who could not support them, children who were orphaned, and children who arrived in America separated from their parents (having been shipped from Europe or Africa as indentured servants or slaves) were all placed in families immediately upon arrival or after a sojourn in a mixed almshouse.

The ideology of the time supported these practices. It was believed that idle children were in danger of moral corruption. Work instilled virtues that were vital to adult life. Parents who did not force their children to work were considered neglectful. Although abuses existed in the treatment of children during colonial times there was an implicit obligation on the part of the master, often obeyed but rarely enforced, to train and educate the child under his care and to prepare him for a future occupation.

Nineteenth Century Changes

Industrialization significantly changed the relationship of adult to child-worker whether parent, master or employer. There was a demand for child labor in textile mills, mines and factories. Child labor made serious abuses such as long work-days, accidents, epidemic diseases, and harsher punishment more likely. Economic changes occurred rapidly, but not uniformly, throughout the country. The change in social and legal practices and beliefs was much slower. For almost one hundred and fifty years, the subject of regulation of child labor was a matter of heated debate.

From the early 19th century on. responses to child labor become connected with the other major purposes of public programs for children: education and vocational training, assimilation, and assistance for children "at risk". The development of public education was influenced by child labor in two ways. First, labor by children was seen as serving an important function of vocational and moral training. If such training ceased to operate on the job it had to be taken over by schools. Second, if children were not to work at a young age, they had to be somewhere else, off the streets. Schools could provide that place.

Parents of immigrant children came from cultures which also stressed the importance of work. Not only were immigrant families often economically dependent on the labor of their children, but they firmly believed in its importance. Most of them equally feared public schools as alien cultural institutions. Although Catholic immigrants most consciously resisted secular public education, fears of majority-dominated schooling were voiced and felt by other non-Catholic immigrant groups. This resistance to public schooling had a concomitant result of lowering the support for legislation and action to abolish child labor.

Finally, most immigrant families as well as many native American families were in constant danger of breakup due to economic crises. The lack of widespread and adequate public assistance programs in both the private and public sector often made child labor a necessity for family maintenance. Public and private provisions for children who lacked intact families took the form of almshouses, institutionalization or foster homes. Whatever the form, it was felt necessary that children under public or private care be morally trained in the virtues of work. Work placement lowered the costs of caring for dependent children, and this was a factor in increasing the attractiveness of child labor.

Early Action

The abuse and neglect caused by child labor was generally accepted as a serious problem which the state should regulate in the late nineteenth century. There had been a few early regulatory moves. In 1813, Connecticut required that all mill owners employing young children must educate them. Massachusetts passed a law in 1836 requiring at least three months per year of schooling for working children. In 1842, Massachusetts and Connecticut forbade the employment of children (under ages 12 and 14, respectively) over ten hours per day in textile mills. Pennsylvania followed in 1848 by forbidding outright child labor under 12 in mills. Those who favored child labor laws argued that working children, especially children working in factories, were living in unsanitary, crowded conditions that led to epidemics and permanent damage to the labor force as well as to moral degradation and ignorance. However the existence of these few laws, largely unenforced, did not seriously impede the heavy use of child labor.

In New England, children aged seven to sixteen constituted about 40% of the labor force in factories. Opponents of state child labor regulation argued that work was morally uplifting and that idle hands are the devil's tools. They were supported by local custom dating back to the Statute of Artificers and the Poor Laws.

Late Nineteenth - Early Twentieth Century Progress

The crusade against the damaging effects of child labor gathered momentum in the post-Civil War era. Privately organized pressure groups, most notably the National Consumers League (a middle-class progressive movement), the National Child Labor Committee, and labor unions made extensive investigations into child labor and lobbied in state legislatures and in Washington for legislation to abolish and not just regulate child labor. The most knowledgeable expert on problems of child labor, Florence Kelley, was convinced that only absolute prohibition of child labor under age 16 would be enforceable. Any weaker regulation, she feared, would make collusion possible among local officials, manufacturers and parents to falsify children's age; the lack of reliable public records or birth registration made such cheating easy.

By the 1890's the movement had achieved some success in the legislatures of Northern states. Enforcement was always a serious problem. Although one-half of the states had legislation against child labor by 1900, the laws were enforced in only about ten of them. Even there, they usually applied only to manufacturing and covered only very young children. State enforcement authorities lacked adequate leadership and financial resources. They were often hampered by discrepancies between state compulsory attendance laws and child labor regulations. The practice of child labor most tenacious and difficult to enforce was "home work". Not only was pay even lower, but conditions in late nineteenth century tenements were even more dangerous and hazardous than in the badly ventilated, overcrowded factories.

In the South, industrialization had come late. In the decade 1890-1900, the number of working children increased by 160%. Northern manufacturers complained about unfair competition of Southern textiles produced with child labor. Occasionally they joined the battle against child labor by demanding federal legislation. Meanwhile, they argued that strict state enforcement would destroy their prosperity. Thus the increase in the number of working children was not confined to the South. In 1870, the date of the first reliable statistics, three-fourths of a million children under sixteen were employed. By 1900, the number had risen to 1.7 million for the country as a whole, despite compulsory school attendance laws in 28 states. By 1918, 17 states were enforcing child labor laws fairly strictly and every state had compulsory school attendance laws. The 1920 census figures showed that 1.4 million children aged seven to thirteen were not attending schools, while the number and percentage of children under 16 in the work force had increased again.

Two federal laws regulating and, in essence, prohibiting most child labor were passed by reformist Congresses in 1916 and 1918. Both were declared unconstitutional by the Supreme Court. A Constitutional Amendment passed Congress in 1924 but was never ratified by a sufficient number of the states, despite ardent efforts of the Children's Bureau whose investigations exposed the cruelty and abuses of child labor, especially in hazardous occupations.

Child labor legislation was opposed by Southern textile factory owners, the National Association of Manufacturers, the American Farm Bureau Federation, the Roman Catholic Church, and certain professional philanthropists and social workers. The opposition contended that such federal legislation was an unconstitutional violation of states' rights, nationalized and "communized" children, impaired the freedom of the child to contract out his labor, and interfered with parent-child relationships including discipline and the inculcation of moral virtues. The Catholic Church was opposed to any intervention in family life and anticipated that the consequences of such regulation would be federal regulation of parochial schools. Manufacturers feared that limiting hours for children might lead to demands for limiting hours for women and utlimately all workers. Many school officials did not want an influx of immigrant children.

The proponents of legislation argued in part on humanitarian grounds. But their greatest emphasis was on the harm to the United States politically, socially and economically, of large numbers of illiterate, malnourished, unhealthy children. Trade unions tended to be more ambivalent proponents of regulation. Although they disliked and feared competition from child labor, which made efforts at organizing and bargaining for higher wages difficult, they represented many poor and immigrant members whose children were in the labor force bringing home money for their families.

We previously mentioned that a connection exists between child labor and educational-vocational training on the one hand, and child labor and assimilation on the other. By the late 19th and early 20th centuries these connections became explicity recognized by public policy regarding compulsory schooling. In states which had undergone early industrialization like Massachusetts, the clamor for both regulation of child labor and legislation for compulsory school was earliest. It is significant that the common school movement as well as other innovations in extending schooling began in Massachusetts and the other Eastern industrial states.

Compulsory attendance laws were passed by state legislatures in increasing number during the late 19th and early 20th centuries. Of course the percentage of children actually attending school regularly varied from state to state and within states by urban and rural areas.

The growth of compulsory public schooling in America certainly cannot be solely attributed to the consequences of child labor regulation. A variety of other motives lay behind proposals for compulsory schooling and upward extension of school-leaving age:

1) human concern for the abuses of child labor;
2) fear of immediate disruption from vagrant children and of future political, social and economic chaos if children were not prepared for new jobs in an industrial economy, and for responsible citizenship in a democracy; and
3) a desire to assimilate newly-arrived immigrant children into the American culture of the early 19th century.

By the end of this period, about the time of the Depression, the battle for compulsory school attendance had largely been won. Every state had legislation requiring school attendance for children; the age of school-leaving had increased; and a large percentage of children of elementary school age were attending schools. Exceptions existed for some farm children, for children of migrant workers and for large numbers of black children in the South.

The Depression and Post-Depression

The Depression produced a dramatic increase in the number of sweat shops and in the amount of child labor. Because children could be employed at the lowest possible wages, wage agreements and state regulation of work hours for adults began to crumble. In some states, the work week was extended to sixty and seventy hours. The New Deal included a counter-thurst by workers, whose unions were unwilling to allow child labor to destroy their progress and their wages. At the state level, twenty-eight states had ratified the Constitutional Amendment of 1924. At the federal level, the National Recovery Act (NRA) Codes outlawed child labor.

After the Supreme Court declared the NRA unconstitutional in 1935, three federal acts were passed in 1936, 1937 and 1938. The Walsh-Healy Public Contracts Act, the Sugar Act, and the Fair Labor Standards Act had the effect of prohibiting child labor under 16 for most products. Despite both legal sanctions and incentives to obey, however, the legislation worked only briefly and incompletely. Important categories were excluded, such as children employed by their parents and children engaged in agriculture. The number of children in the labor force did decline in one year (1940) only to increase again with preparations for World War II and during the War itself. Back-to-school drives and other efforts to induce children to remain in school could not effectively counteract the lure of good pay during a period of manpower shortage. Federal laws were not strictly enforced until the end of the War.

In 1949, the Fair Labor Standards Act was amended to close loopholes for children employed by parents in certain occupations, and federal enforcement was tightened. Together with forces in the economy which were demanding skilled labor and greater educational attainments for employment, child labor had ceased to be a serious social problem with the significant exception of children of migrant workers.

From the adult perspective, the public policies of regulating, restricting and reducing child labor together with the requirement for compulsory schooling led to a) lessened competition with children for certain jobs, b) new jobs for adults in school-related occupations, and c) freeing mothers to work. These are discussed in greater detail below.

a) During the 19th century children were heavily employed in certain industries such as textiles and mining, first in New England and spreading later in the Century throughout the country and extending to the South by the last decade. In addition immigrant children in cities were employed in garment, ornament, and newspaper and telegraph-delivery jobs. We have mentioned previously the effect of child employment on wages and hence the hostility shown by many trade unions. Mixed with hostility, however, was the recognition tha children were an indispensable source of income, especially among newly-arrived families in urban areas and on farms in rural areas throughout America. Once again during the Depression, large numbers of children were used as a means of lowering wages for adult workers. While legislation regulating and restricting child labor was finally declared constitutional by the Supreme Court in the late years of the 1930's, the fruition of efforts to meaningfully restrict child labor was delayed until the post-World War II era. Today, with the significant exception of migrant children, there is no large portion of the child population engaged in competition for jobs with adult workers. However, trade unions have maintained their vigilance by remaining hostile to any suggestion for a large-scale lowering of the age of compulsory school attendance, and have supported drop-out prevention programs which keep youths in school and off the labor market.

b) School teaching, which had been a fairly low-status job for itinerant males in the colonial period and early 19th century, became an increasingly important source of employment opportunity beginning in the late 19th century. It was also the largest source of relatively high paying and high status jobs for women. The pattern of employing predominantly female teachers in the primary grades began at this time and has continued to the present. In addition to school teaching, the growth of public schooling has provided employment for a variety of school-related personnel, both professional and non-professional.

During the Depression, a considerable amount of school construction was undertaken, primarily to provide employment but also to compensate for more than a decade of underinvestment in the schools, hospitals, and other public facilities since World War I. The first big push for large-scale publicly-financed day care took place during this time of severe adult unemployment. The FERA and WPA nursery schools and day care centers provided employment to teachers, nurses, nutritionists, trainers of professionals, and to clerical workers, cooks and janitors. After the most severe unemployment had been ended in the late 1930's and in the early 1940's, the number of nursery schools and day care centers funded by the federal government declined and they were almost eliminated by 1943.

c) That federally funded nursery schools and day care centers did not disappear after 1943 was due to another purpose of public policy toward children and the adult labor market-- the freeing of mothers from child care responsibilities, thus enabling them to enter the labor force. Increasing labor shortages owing to the drain on manpower caused by the draft, and a high demand for workers in the tight labor market caused by war production industries led to the continuation of federally supported day care and nursery programs under the Community Facilities Act of 1941, the Lanham Act. The federal government contributed 50% of the cost, to be matched by states in areas of high concentration of defense-production industries. States and localities were responsible for supervision and standards. By July, 1945, 1.6 million children were enrolled in centers funded under the Lanham Act. States and localities in non-targeted areas not eligible for federal funding provided additional day care and nursery school monies.

After the end of World War II, funds soon ceased to be available under the Lanham Act. Despite protests from community groups spearheaded by womern's rights organizations, states and localities eliminated or drastically cut back on day care and nursery school support with few exceptions. Public policy between the late 1940's and the mid-1960's was based on the assumption that the public purpose of providing child care to free mothers to work was proper only in times of emergency; in normal times mothers belonged at home with their young children. Mothers of school-age children could work but little public support was given by providing for children's after-school care.

Since the 1967 Social Security Amendments which created the WIN program, the argument for day care in terms of freeing mothers to work has been revived. At first the argument was limited to justifying work for mothers on Aid for Families with Dependent Children, since the number of such families began to increase in the mid-1960's, at a considerable cost to the federal, state and local governments. Recently this argument has been extended to cover all mothers by the movement for women's rights. Some professionals in education and child development psychology also argue that such day care could compensate for disadvantageous home and family environments of lower-class or lower-income children by providing enriched cognitive stimulation.

Conclusion

Changes in public policy toward children and the labor market reflect changing conceptions of the contract between children, families and society. Until the 19th century, the role of society in regulating the labor market through child policy involved little action on the part of the public sector. The private sector provided apprenticeships and indentures for children, enabling them to work outside the family. The major activity, however, took place between children and their families. Families and Masters could demand the labor of children, even very young children, in return for providing the child with sustenance, acculturation and preparation for adult economic roles. Most typically children entered their father's or mother's occupation if they were not apprenticed or indentured out. Only gross breaches of the contract between parents or masters and children could be punished by society.

Since the 19th century, society, especially in the public sector, has taken a more active role. At the same time the contract between society and children, society and the family, and children and the family has been considerably altered. It is now a recognized obligation of government to step in to protect children who are neglected and abused by their families or by the private sector of society. In the 20th century this humanitarian obligation has meant laws at the state and federal level limiting, restricting and in most cases abolishing labor of children under 16 years of age. The contract between families and children regarding preparation for adult social and economic roles and providing caretaking for children (over six years of age until about sixteen) has been modified; society has assumed the obligation to educate children in schools. This obligation is partly humanitarian but largely a matter of short-term interest in removing children from the streets and from idleness, and long-term interest in producing properly socialized and economically capable citizens.

The contract between society and families in regard to the labor force changed much more slowly in the 19th and early 20th centuries. But since the Depression the public sector of society has recognized a responsibility to provide employment either directly (through job training and manpower policy) or indirectly (through monetary and fiscal policy), or at least to provide employment security through insurance. Generally the government has been reluctant to create jobs directly in the public sector in order to increase employment. However, demands for such action have continued intermittently. Recent demands for federally-subsidized day care are made in part in terms of the obligation of government to provide jobs for unemployed school teachers.

Until very recently, the contract between society and families with regard to the public sector providing money and/or services enabling mothers to work has been settled: mothers of young children were to stay home and take care of their children. Mothers of school age children were not to be subsidized directly for the care of their children between the time that school ended and the mother returned from a full-time job. If no other breadwinner was available, AFDC payments would provide money to enable the mother to stay at home at least part of the day most of the year.

Since 1967, attempts have been made to induce mothers of families on AFDC to go to work. One major inducement has been the provision of day care for such children under the WIN day care program at the federal level, and by increased or new funding of day care at state and local levels. Attempts to renegotiate this part of the contract between the public and private sectors (some private employers are providing day care for employee's children) are matters of heated debate at the national level today, involving parents who are not on Aid for Families with Dependent Children, but who wish to have the public sector subsidize child care.

Public Care for Children "At Risk"

There has been remarkable continuity in Anglo-American social welfare policy toward children over the last 400 or more years in identifying certain groups of children as being "at risk" subjects, and hence of social concern and responsibility. These groups consist of the physically handicapped and those with serious diseases; the emotionally disturbed; the mentally retarded; orphans; children whose mothers or fathers are permanently or temporarily absent; illegitimate, destitute, neglected, abused, and antisocial or delinquent children. Only very recently have two new categories been added: children belonging to minority groups and children of migrant workers. What sets off social concern for all these groups is the inability of the family (when it exists) to cope with such problems and/or the public danger which will exist if these problems are not treated.

This does not mean that society always accepted full responsibility for children in these risk categories. It has not always provided care, treatment, or rehabilitation, nor has it always sought to prevent these misfortunes. Since the mid-sixteenth century in England and since colonial times in America, however, it has at least shown concern.

This section will trace through American history the gradual translation of concern for these children into social action and social responsibility. It considers four historical periods: England and Colonial America (1550-1789); Federal pre-Civil War America (1789-1865); industrial America until the Depression (1865-1932); and America since the New Deal (1933 to the present). While significant social or political events separate the periods and have influenced social welfare policy for children, the continuities between periods are as important as the breakthroughs. Within each period we will be concerned with the actions taken and the philosophical or ideological debates about proper provision for the welfare of children thought to be at risk. As in previous sections, the historical review will conclude with a discussion of the contract between children and society and families and society.

England and Colonial America (1550-1789)

Sixteenth century England saw considerable social and economic upheavals which left a large number of indigent adults and children. The Poor Laws passed by the British Parliament in 1597 and 1601 reflected sixteenth century practice and thinking about providing for these needy groups. The laws recognized the nation's responsibility and concern for indigence and acknowledged Parliament's rule-making authority in social welfare. They embodied the notion that no Englishman ought to starve because of neglect. Because the problem was seen as susceptible only to local solution by local administration, Parliament ordered that in every parish (the smallest local government and ecclesiastic unit) Overseers of the Poor and church wardens tax each inhabitant to provide for the indigent.[3] Government provision was to be a last resort, used only when the family, mutual aid, and local private charity could not care for the dependent population. It was recognized that people become dependent for a variety of reasons and hence require different types of help. The poor, aged, infirm, and disabled -- adults or children -- were to be fed, sheltered, and cared for in public almshouses built by the Parish. Able-bodied but indigent individuals were to be provided with work or with outdoor relief (the dole) enabling them to become gainfully employed. Those who refused work were to be incarcerated and executed. Children whose parents were alive but indigent were to be contracted out, indentured or apprenticed if homework (knitting or spinning) were not available to support them.[4] In return for their work, their masters were to care for and instruct them.

The Poor Laws remained a major basis of Anglo-American social welfare philosophy and action until the mid-20th century. From the time of their passage, however, they were widely ignored and rarely implemented in full. Throughout the 17th century many parishes had no overseers of almshouses and provided only a casual dole. Executions for vagrancy were frequent.

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[3] However, only those who were "settled", i.e., officially resident were to be provided for. Local government had no responsibility for vagrants, who could be forced to return to their native parishes under penalty of whipping, incarceration or execution.

[4] Under the Statute of Artificers (1563), dependent children could be forced to be used for husbandry and tillage as indentured servants until the age of 24 for males and 21 for females, or could be contracted out as apprentices to artisans for seven years.

Children in almshouses were contracted out with no concern for their care and instruction. In the 18th century many were turned over to distant mill owners with no possibility of supervision. Even crippled children were hired out to factory owners who were forced to take a certain number of handicapped along with able-bodied children. Child labor was looked upon not only as a necessity demanded by the Iron Law of Wages and other "natural laws of economics" but as a beneficial activity, for the prevailing ideology held that work was morally uplifting: idle hands were the devil's tools.

Colonial America reflected its English heritage. It adopted the English Poor Law legislation and social welfare practice. Their use was modified by the realities of the American frontier, which provided greater opportunity for the able and ambitious but also greater dangers, especially for the less fit. The frontier made mutual aid more necessary for survival but also made the virtues and practice of public and private charity less realizable.

The forms of relief in colonial America were all of English origin. There was outdoor relief or the dole by which the largest number of dependent people received care, albeit reluctantly and insufficiently. There were a few mixed almshouses, which included all the dependents in the community, physically and mentally ill and retarded adults and children, orphans and poor children not yet indentured, the aged and the handicapped of all ages, and criminals. Mixed almshouses were favored as cheaper than outdoor relief and better morally since the able-bodied could be forced to work. Almshouses or poorhouses were predominantly supported by locally raised tax funds administered by local Overseers or Trustees of the Poor, with private funding only in richer and more settled towns. Able-bodied children might come to them if orphaned because of war, starvation or disease, or they might come from intact but indigent families. They remained in almshouses until they were apprenticed out or indentured. Keeping children in almshouses was considered uneconomical, physically dangerous because of epidemics, and morally corrupting because of the criminal and vagrant adults present. Both poor parents and almshouses could put children up for bidding at public auctions. Existing statues required that the child be trained and educated by the master, but the statutes were not enforced strictly or uniformly. Masters were responsible for feeding housing, and caring for their apprentices, for instructing them morally and vocationally, and for providing them with means enabling them to be gainfully employed at the termination of their indenture. Justices of the Peace were charged with removing maltreated children from masters.

The English Laws of Settlement were strictly enforced in all colonies. New settlers had to certify that they were free from pauperism and were periodically "warned out" so that, should they become indigent, the local community would not be responsible.

The eighteenth century saw the beginnings of institutions specializing in care for categories of dependent children. Almost all were church-supported orphanages. Only one orphanage, in Charlestown, South Carolina, was publicaly financed.

Independence to the Civil War (1789-1865)

The period beginning with the winning of independence and ending with the Civil War saw some significant innovations in the care of children judged to require the help or protection of society. Despite the innovations, considerable continuity was maintained with both the ideology and practice prevalent in colonial times and in pre-nineteenth century England. Three noteworthy characteristics of the period were: 1) the rise of specialized institutional care; 2) the persistence of mixed almshouses and colonial practices at the local level; and 3) the almost complete absence of federal responsibility and the limited role of the states in accepting responsibility for the care of dependent children.

For the first time in our history distinct needs in childhood were differentiated. Concerned citizens spoke about specialized care for the handicapped (the deaf, the retarded and emotionally disturbed); the orphaned child; and to a lesser extent, the anti-social or delinquent child. On the other hand, not much distinctive service was considered for categories of financially dependent children (illegitimate, father absent, those from intact but financially impoverished families) or of abused and neglected children.

Throughout this period sizeable charitable bequests were made by newly enriched Americans, especially those living in the bigger Eastern seaboard towns and cities like Boston, New York, Philadelphia and Baltimore. For example, private philanthropy in Boston averaged about $100,000 per year between 1815 and 1830; it rose to $133,000 between 1830 and 1845. By 1865 it was over $500,000. Such bequests constituted a major source of funds for services provided to the handicapped and orphaned; such services were supplemented only minimally by local and state funding. There were also some bequests for nonspecialized aid to almshouses and for emergency outdoor relief.

The handicapped. For the blind child, private charity created the first Asylum for the Blind at Boston. The State of Massachusetts soon began to subsidize this institution, which later became the Perkins Institute. By 1850, there were eight state institutions for the blind and twelve state residential institutions for the deaf in the U.S. In two of these, the American Asylum for the Deaf and Dumb in Hartford and the Kentucky State Residential School for the Deaf, the federal government provided a portion of the income from land grants. However, this implicit assumption of federal responsibility for child welfare was exceptional. In 1854, after Dorothea Dix spearheaded considerable national agitation for more humane treatment of the insane and retarded, Congress appropriated funds via land grants for the care of the insane and disturbed. In a veto message which set a precedent for federal inaction for more than five years, President Pierce claimed that there was no constitutional authority "for the care and support of all those, among the people of the United States, who by any form of calamity, become fit objects of public philanthropy."

Instead, Pierce argued, this responsibility belongs only to the states. By 1860, only six states had acted on that responsibility by setting up or subsidizing institutions for the care of mentally retarded or disturbed children. These state institutions, such as the Worcester Lunatic Asylum in 1835, were often required by state law to receive a local subsidy. Local governmental bodies paid a per capita fee for every inmate they sent, a policy which undoubtedly served to reduce referrals.

The orphaned. Private charity for orphaned children continued to expand from colonial times. By 1850, there were 116 private institutions for orphaned children under religious or nonsectarian auspices. These institutions were established as a reaction against the placing of orphans in mixed almshouses. Pressure was brought to bear on states to outlaw mixed almshouses for orphaned children, to provide separate facilities and to subsidize private institutions. During this period only New York and Pennsylvania mandated separate facilities and actually provided subsidies on a per capita basis. California in 1855 legislated a lump-sum subsidy for two institutions for the orphaned.

Because of the uneven distribution of industrial growth and wealth in America, almost all specialized public and private services for handicapped and orphaned children (and these were not numerous) were located in the older and richer states. On the frontier and in more rural areas of all states no specialized services existed for these children during the period from Independence to Civil War.

The anti-social child. Another category of dependent children for whom specialized care was occasionally arranged was the child offender: the anti-social, delinquent or vagrant child. The colonial precedent of incarceration of such children with adult criminals in mixed almshouses or jails prevailed. In the early nineteenth century, Houses of Refuge or Reform Schools were established in Boston, New York and Philadelphia in reaction to widespread concern that Houses of Correction or mixed almshouses morally corrupted juvenile offenders, could not provide them with suitable employment or education, and stigmatized them for life. The new institutions were created with the hope of reforming youths "scientifically" by instilling in them the virtues of good habits and hard work through rigid discipline and careful organization of their lives in the institution. However, some Reform Schools, like the one in Westborough, Massachusetts, also stressed such "family virtues" as kindness, love and respect in attempting to make the institution seem more home-like. This theme -- the virtues of family arrangements in the care of dependent children -- was to increase in prominence in the late nineteenth century. In 1856, Ohio set up a cottage plan in its institution for juvenile offenders. Those who profited from the regimes of the Houses of Refuge were placed out as apprentices or servants. Unfortunately, the number of masters willing to accept responsibility for apprentices was dwindling. Tradesmen and factory owners preferred a simpler employer-employee wage relationship using child labor.

Finally, in only a few places were the special problems of illegitimate, neglected, abused, or financially impoverished children recongnized. In Boston, Buffalo and St. Louis, private maternity homes and hospitals were established, primarily under Catholic auspices, to prevent infanticide and abandonment of illegitimate children. Another exceptional example of specialized services was Nursery and Children's Hospital in New York City, established in 1854 for children whose mothers were widowed or working.

Summary. The above account of early nineteenth century efforts at providing social welfare services has emphasized the innovations in philosophy and practice. The outstanding innovation was to begin *specialized* services for handicapped and orphaned children. In these activities, private charity and to a lesser degree state governments played important roles, but such services were not common practice even in the richer and older states, and they hardly existed in the rest of the country.

Most social welfare services continued to be provided as they always had been -- at the local level in nonspecialized mixed almshouses and by casual doles, both public and private. In rural areas, almshouses began to multiply in the first half of the nineteenth century. Public doles were widely criticized as being expensive, inefficient, susceptible to corruption and encouraging to immorality and pauperism. Although available records are limited, it seems that the public dole continued to account for the largest public welfare expenditure. Some persons favored almshouses as being more economical, because the able-bodied poor could be forced to work. Others contended that despite almshouses, the able-bodied did not work. Furthermore, there was an immoral mixing of ages and sexes, and children were often in in the care of insane, retarded, or criminal adults. Toward the mid-nineteenth century some states mandated separate facilities for children, but these state laws were generally ignored because of costs and the unwillingness of communities to send dependent children far away.

Post-Civil War to the Depression

The post-Civil War period witnessed the industrialization and urbanization of America on a large scale and the introduction of new ethnic elements into the American population. The unevenness of the rate of industrialism, urbanism, and immigration was reflected in the wide variation of both the wealth and the social problems of local communities and states. Interacting with this were the pre-existing diversity and local traditions of social welfare delivery systems. Thus, most generalizations about the level and kinds of social welfare services for children during this period are hazardous.

During this period, which ended with the social legislation of the New Deal, several trends can be detected. They reflect the thinking and practice of the more highly industrialized and urban sections of the country. Again, there were continuities in thought and practice in the less developed areas, and new practices in the more developed sections. The trends include: the growth of specialized institutions for categories of children "at risk" and their extension to include neglected, abused, financially dependent and minority group children; and the renewed emphasis on family settings in the provision of social welfare service to children, representing in some ways a reversion to pre-nineteenth century practice. The trends also include two new developments in American social history: a movement to coordinate, plan, professionalize, and in some cases, centralize the provision of public and private welfare services, and the first meaningful recognition of federal responsibility for the welfare of children, however meagerly translated into concrete action and services.

Specialized institutions. Separate services to distinct categories of children at risk emerged fully in the post-Civil War era. By the close of this period, about 1935, social concern and action was evident for the full spectrum of what we today consider to be disadvantaged children. The early 19th century list of blind, deaf and dumb, insane, retarded and orphaned was expanded to include additional categories: children whose mother was incompetent, widowed, or working; illegitimate, destitute, abused or neglected children, including those engaged in child labor; children belonging to a minority group which is discriminated against (Puerto Rican, black, Chicano); children of migrant parents; and anti-social or deviant children. Clear distinctions were made between the emotionally disturbed and the retarded child, and additional physical handicaps were recognized such as chronic illness and noncrippling defects. Emphasis for these categories of children was beginning to be placed on prevention as well as treatment, and public action was increasingly recognized as a continuing responsibility rather than an act of voluntary charity.

Public and private institutions for the blind and deaf increased in number. State governments began to subsidize treatment and education for these handicapped children more widely. States also assumed formal responsibility for the licensing, supervision and inspection of private as well as public institutions, although regulations and their enforcement varied widely. Some communities and certain social welfare proponents lost faith in the efficacy of institutional arrangements for treating the handicapped. Solutions emphasizing care and training in family settings rather than in residential institutions were proposed.

By the 1920's, there was strong reaction against institutional care for the retarded and emotionally disturbed. The second White House Conference in 1919 favored home care of children in a family setting while reaffirming state responsibility for special schools with trained teachers and special equipment. Equally noteworthy was the recommendation of this Conference and subsequent Conferences on the prevention of defects, especially the prevention of emotional disturbance by mental hygiene programs and by Child Guidance Clinics.

The first Child Guidance Clinic, founded in 1909 as the Juvenile Psychopathic Institute in Chicago, was attached to the Juvenile Court of Cook County. Subsequent Clinics were attached to courts, hospitals and private family and children's social agencies. The Child Guidance Clinic pioneered in developing collaboration between psychiatrists, clinical psychologists and social workers to provide simultaneous treatment of the child and his parents. In addition, they worked with schools and family agencies in prevention programs and in the early identification of potentially disturbed children. State and local governments also established Child Guidance Clinical services in State Departments of Mental Health or Hygiene, while the federal government in 1930 changed the title of the Narcotics Division of the Public Health Service to the Mental Hygiene Division. and inaugurated a program of consultation to state governments. Despite the vogue of the child guidance movement in the early 20th century, services were never widely available until the 1950's.

Special provision for deviant children continued through the institutional growth of Houses of Refuge (sometimes called Reform or Industrial Schools). By 1900, there were over 70 such institutions in the country. Yet faith in institutional solutions based on the philosophy of reform through discipline, organization, and work was beginning to wane.

At the same time that segments of the public were looking for alternatives to special institutions for the reform of antisocial children, proposals were made to separate children from adult criminals not only after sentencing but in court as well. After 1869, public officials from the State Primary School in Massachusetts regularly attended trials of children at Magistrates' Court and advised the judges on the sentencing of children, thus offering certain children a chance for probation under the supervision of the newly created State Board of Charities. Reform schools would be used henceforth as a temporary placement center before foster care and for permanent institutionalization only as a last resort. Before 1899, several states, notably New York and Rhode Island, required separate hearings and detention for children's cases. The first juvenile court was established in Cook County, Illinois in 1899.

The juvenile courts were based on the assumption that delinquent children were misguided and in need of psychiatric services and psychological examinations rather than criminal. Proceedings were non-criminal and not only required separate trials and detention but also special judges, records with limited public access, and provision for close supervision by parole officers. By 1919 all but three states had laws providing for juvenile courts. However, a Children's Bureau survey in 1923 showed that although special provisions for juvenile cases existed in 2034 jurisdictions, only 321 were true juvenile courts. The recording and reporting systems of various juvenile courts were not uniform. The Children's Bureau proposed Model Juvenile Court legislation which was passed by only a small number of states up to 1935.

Care for orphans, who had been supported largely by private funds in the early 19th century, expanded considerably through both institutional and non-institutional settings. Many children were orphaned because of the Civil War, and a growing number of children were abandoned owing to illegitimacy. This spurred private and public action. Two models of private efforts were the New York Protectory founded in 1863 by the Society for the Protection of Destitute Catholics and the New York Foundling Hospital established in 1869. In 1883 Thomas Crittendon erected the

Florence Nightingale Mission for orphans which, extended by Crittendon's organizational efforts, became the first in a national chain of orphanages with headquarters in Washington, D.C. By 1898 there were 53 such homes in cities and towns throughout the country, and Crittendon received the first national philanthropic charter by a special act of Congress. Public institutions for orphans sometimes followed the pattern established in Massachsuetts in 1863 of a residential primary school. Other states established institutions along the lines of Colwater in Michigan, which was organized on the cottage plan. In California and Maryland, the states paid private institutions an annual per capita fee for the care of orphans. Several other states followed this plan but at a very low level of payment. In many states laws provided for the licensing and inspection of private orphanages, but officials did not necessarily enforce their standards. Public and private institutional care for orphans came under increasing criticism from those who felt that no institution could provide proper family care for children, and efforts were made to place infants and very young children with willing families.

In the post-Civil War Era more attention was paid to new categories of children in need, especially those whose parent or parents could not support them financially and those who were neglected and abused. Recognition of being in a risk category, but little more, was granted to minority children and to those of migrant families. Strenuous but largely unsuccessful state and national efforts were made to end or at least severely limit child labor.

Aid to children of widowed mothers was extended by private agencies on a temporary, emergency basis in the form of cash relief. There were scattered efforts to create day nurseries for children of Civil War widows. By 1897, there were about 175 day nurseries in the country, mostly in large cities and towns. Services and private relief were available only to a small number of mothers and often for just a short period of time. Public relief provided inadequate amounts of money, and the system of local doles was often administered poorly or corruptly. By the late 19th century, even this unsatisfactory form of aid was drying up as many cities severely curtailed or abolished outdoor relief, among them Philadelphia, Brooklyn, San Francisco, Washington and Baltimore. As a result, many widows were forced either to go with their children to the poorhouse, to give them up to state or private institutions, or to place their children for adoption or foster care -- sometimes for a profit.

The injustice of this state of affairs stimulated a demand for mothers' pensions, which were recommended eventually by the first White House Conference on Children in 1909. (That Conference recommended pensions from private, not public, sources, and it did not envisage the pension as a form of social insurance or workmen's compensation.) The first state laws providing for pensions, in Missouri and Illinois (1911), authorized public funding, but state money was not provided. Instead, juvenile courts were to fix the amount of relief that county governments were to pay. By the 1920's, 41 states had some form of mothers' pension under various eligibility requirements. But in all such states, except Pennsylvania and California, the state legislation was permissive rather than mandatory. As late as 1934, when all but three states had such pensions, only about one-half the counties in the U.S. were paying relief under these laws.

Opponents of the mothers' pensions argued that they were a hidden form of dole, that they were likely to be badly administered, susceptible to political interference, and morally corrupting. Some argued that private voluntary organizations such as the Charities Organization Society were better able to administer relief. Others, arguing in the context of Social Darwinism, contended that any aid -- but especially tax supported relief -- impaired natural selection of the fittest.

Although several states had laws which provided for public intervention in cases of cruelty, gross neglect or serious danger to the health, morals or instruction of children, no systematic efforts were made to enforce the laws until the post-Civil War period. In 1874 the New York Society for the Prevention of Cruelty to Animals successfully prosecuted a case against the guardians of a New York child. The resultant publicity led to the formation of the New York Society for the Prevention of Cruelty to Children in the following year. Similar societies were established in other cities and by 1900 they numbered 161. SPCC's pressured states to pass strict legislation against child abuse and cruelty and were often granted police power to remove such children from their homes. Privately organized and located mainly in urban areas, they received per capita subsidies from states for their work. They emphasized the removal of abused children and the legal prosecution of parents (which they aided by investigation and appearances at court) rather then working with the family to prevent continued abuse. Soon the societies were engaged in institutional care for rescued children not sent to state institutions; efforts were sometimes made to find foster homes. Considerable unpopularity of both the punitive aspects and the removal of children to institutions eroded support for SPCC's. By the 1920's state welfare departments were assuming their powers while private family social work agencies and public child welfare agencies spoke more about protective services for abused children through working with families rather than by removing children.

Re-emphasis on the family. One thread that runs through this narrative account of services for special categories of children at risk is that of growing disillusionment with institutional treatment. Yet the criticism of institutional care and a demand for more personalized, family-oriented treatment was not so much an innovation of late-19th century thought and practice but a reversion to pre-19th century types of services. The founder and champion of the foster-care movement in 19th century America was Charles Loring Brace. His organization, the New York Children's Aid Society, began its program of placing homeless, vagrant and poor urban children in foster family rural communities as early as 1853. Brace spoke and wrote forcefully about the virtues of rural homes which would encourage religion, honesty, and hard work. He rejected formal indenture of children as rigid and inappropriate although, in some parts of the United States, indenture continued to be the favored means of caring for orphaned and other destitute children. Instead, the Children's Aid Society organized efficient home-finding committees in rural areas in the East and Midwest, often advertising for foster parents by newspaper. The procedure required a minimum of preliminary investigation or formal arrangements and almost no follow-up. It was efficient and placed over 55,000 children. Similar societies were later organized in Boston, Baltimore and Philadelphia. In Massachusetts, after 1869, far more careful preliminary investigations were made under the leadership of Samuel Gridley Howe and Frank Sanborn with the cooperation of the State Board of Charities and the Boston Children's Aid Society. Follow-through, on the other hand, met with more limited success. Attempts were made to study potential foster homes and to reform the real parents so that foster placement would not be necessary.

The first White House Conference on Children in 1909 strongly emphasized the virtues of home life:

> Home life is the highest and finest product of civilization. It is the great molding force of mind and of character. Children should not be deprived of it except for urgent and compelling reasons. Children... who are without the support of the normal breadwinner should, as a rule, be kept with their parents, such aid being given as may be necessary to maintain suitable homes for the rearing of children...Except in unusual circumstances, the home should not be broken up for reasons of poverty.

That Conference and subsequent Conferences suggested that when a family break-up cannot be avoided, a well-chosen foster or adoptive home is the best substitute environment, if accompanied by careful follow-through and support of the child. Where institutional care was required, the cottage plan was favored.

Coordination and professionalization. As public and private aid and services grew and as knowledge in medicine, psychiatry, sociology and economics shed light on the problems of dependent children a movement developed for coordination, centralization, and planning, and for professionally delivered services.

One early manifestation of this movement was in the mid-19th century work of Robert M. Hartley of the New York Association for Improving the Condition of the Poor, founded in 1843. Hartley's aims, also assumed by the Charity Organization Society later in the 19th century, were to coordinate public and private relief efforts to provide individually tailored help for worthy individuals and families, while preventing chronic dependency or pauperism. This was to be done by dividing local communities into small districts using volunteers (called "friendly visitors") to investigate, recommend help, and work with the needy poor. By 1879, branches of the Charity Organization Society existed in major cities and "friendly visitors" became salaried. They were the forerunners of modern social caseworkers. Professional organizations and meetings of caseworkers and public welfare officials began in the late 19th and early 20th centuries, most notably the National Conference of Charities and Corrections. Caseworker groups soon began to lobby for greater resources and for professional recognition. Eventually they set up a tenure system and educational requirements for membership.

Government cooperation and coordination began at the state and local levels. In 1863 Massachusetts organized the State Board of Charities, which was responsible for coordination of state, local and private efforts including licensing, inspection, and investigation. By 1873, ten states had established such Boards, and by 1913 almost all states had them. At least two distinct patterns of control and coordination emerged. One, following the example of Massachusetts, not only vested formal responsibilty in the state but also provided for an active role of the state board in the administration of state institutions and in the supervision of local public and private institutions and practices. The other pattern, adopted by Minnesota, acknowledged state authority and responsibility but delegated almost all powers of administration to lower levels of government, usually to a county board. Coordination in those cases was to be attained at the local level. In fact the pattern of administration had little significance, since state aid was very limited. By 1935 all states had formally acknowledged responsibility for the licensing, supervision, and inspection of public and private institutions, maternity homes, foster homes, and child placement agencies, but great variation existed even within states in the age of protection of children, enforcement of child labor laws, requirements for licensing, inspection, records and staff training and penalties for violations.

Federal responsibility. Federal involvement in the social welfare of children grew considerably in the post-Civil War Era. However, until 1933, federal money for relief and/or services for children was virtually nonexistent.

We have already noted one instance of attempted federal intervention which failed to have any significant impact, federal prohibition of child labor, which was struck down twice by the Supreme Court.

Somewhat more successful were the series of White House Conferences on children. The first of these (1909) led to the establishment in 1912 of a federal Children's Bureau, which had been lobbied for since the early 1900's by Florence Kelley of the National Child Labor Committee and by Lillian Wald. Its purpose was

> to investigate and report...upon all matters pertaining to the welfare of children and child life among all classes of our people, and (the Children's Bureau) shall especially investigate the questions of infant mortality, the birth rate, orphanages, juvenile courts, desertion, dangerous occupations, accidents and disease of children, employment legislation affecting children in the several states and territories.

In its first decade, the Children's Bureau gathered valuable statistics and published reports on mothers' pensions, institutions, foster homes, illegitimacy, juvenile courts and delinquency. Its study of birth records noted that income, urban-rural environment, maternal and infant care, and sanitation stood in close relation to infant and maternal health. The study was widely disseminated and, partly as a result of it, Congress passed the landmark Sheppard-Towner Act in 1921, which involved the federal government in social legislation for children. It provided grants-in-aid to states which were administered and supervised by a board of the Children's Bureau. The guidelines emphasized efforts in rural areas to reduce infant and maternal mortality and to protect the health of infants and mothers. However, it relied primarily on state voluntary participation; to get a grant, a state submitted a plan which it would administer. The opponents of the Sheppard-Towner Act argued that it was socialized medicine and that it gave too much power to the federal government. Three states -- Illinois, Massachusetts, and Connecticut -- refused to participate for just those reasons. The Maternal and Child Health Act was another important precedent. Renewed only once, it was allowed to expire in 1929, but it set the stage not only for the principle of federal responsibility but also for the form of federal efforts for the social welfare of children.

1933 to the Present

The current era of the history of social welfare legislation for children begins with the New Deal. It includes both income and service programs.

Income programs. The Social Security Act of 1935 and subsequent amendments significantly altered the availability of financial aid for poor families with dependent children. Where family poverty was caused by old age, death, or disability of the breadwinner, federally financed social insurance was provided after 1935 for old age or retirement and after 1939 for widows and surviving children. However, parental death and disability were already a less frequent cause of serious poverty for children than they had been because of greater industrial safety, increased longevity, better medical care, and the growth of workmen's compensation. In 1968, approximately 500,000 children (age 0-18) received benefits under Old Age Survivors and Disability Insurance or social insurance because of parental old age; another 2.6 million children and 500,000 widowed mothers got survivors' benefits and 800,000 children were paid under disability benefits of this program.

A large and growing number of children, however, were living in poverty because of desertion, separation and abandonment by fathers. For this group of children, who formerly might have received money under mothers' pension schemes, Title IV of the Social Security Act (Aid to Dependent Children) was applicable. ADC eventually made mothers' pensions nationwide under federal regulation. Whereas formerly mothers' pensions existed under local control but with some state regulation, Title IV gave increased power to the state government with some federal requirements. To receive federal money under ADC, states had to submit plans for state-wide coverage (money and some medical services). The plan had to provide for prompt action after application, for hearings in case of appeal, and for privacy of records. Although federal funds were available in February of 1936, only six states approved ADC plans that year. As late as 1938, only 38 states had complied with the federal guidelines. In 1955, the last state, Nevada, qualified. Since 1939 coverage under AFDC (the initials now used for it) has been extended to children under 18 if still in school; funds may be paid to certain relatives as well as mothers; and federal matching has increased to 50% (even more under certain conditions) including administrative costs. In 1962, states could extend coverage by choice to families with unemployed fathers (AFDC-U). Thus far only 28 states have done so. Initially, states were free to determine the criteria of need (except that they could not demand previous residence of more than a year), but both Social Security Administration regulations and federal courts have considerably narrowed the latitude of state eligibility requirements and procedures.

Despite general prosperity and high employment of the 1960's, the number of families on AFDC increased enormously. Because AFDC is funded by an open-ended appropriation, the cost to federal as well as state and local governments has grown proportionally. The causes most often advanced to explain the jump in AFDC recipients are: (1) An increase in the number of broken homes due to desertion and abandonment as well as divorce and illegitimacy. Children from broken homes on AFDC grew from 66% in 1961 to 75% in 1967. Some argue that AFDC encourages desertion and illegitmacy by ceasing payment upon a mother's marriage. (2) Liberalized federal and state laws and regulations together with federal court rulings against state practices limiting eligibility. (3) New programs like the aforementioned AFDC-U and work-incentive schemes which permit mothers of AFDC to earn more money, to keep student earnings, and to deduct from earned income certain employment expenses. These rules have allowed families which would have formerly been cut off from all aid to remain on AFDC and receive only somewhat reduced payments. Recent Supreme Court rulings have struck down the "man-in-the-house" investigations used by many states to cut AFDC rolls. They have also declared unconstitutional state residency requirements, a remnant of the Poor Laws. (4) More potentially eligible recipients are demanding coverage and full benefits. They have been encouraged in part by greater emphasis placed on providing caseworkers for social welfare counselling since 1962 and in part by publicity from welfare rights and advocacy groups.

Despite the increase in costs for AFDC, the 6.9 million children and 2.5 million families covered by this program are among the most deprived groups in the population in terms of the gap between their income and their needs. For a family of four, the average national monthly AFDC payment in 1968 was $197 compared with an average basis of need, computed from state standards, of $238. These figures conceal enormous variation among states and localities. In over one-third of the states, the average monthly allowance was under $215. For a family of four, this sum annually was $1000 below the official poverty level.

Other children qualify under other categorical grant-in-aid programs to states such as aid to the disabled and to the blind, and as children of veterans with service- and non-service-connected disabilities. Veterans benefits, which presently cover over 27 million veterans and their families, are often pointed out as examples of enlightened welfare income transfer programs. Part of the Veterans program is an "insurance" scheme which provides compensation for service-incurred disability, injury or death. This part is analagous to OASDI. The other part consists of a pension program for families of needy veterans. In 1968 there were 1.6 million beneficiaries of this program covering veterans without service-connected disability, their wives or widows and their dependent children. Eligibility requirements are nationwide with a more generous income limit of about $3200. Need is certified by a simple statement updated from time to time by the recipient, and spot checks show little cheating. Dependent children continue to receive payments even if their mother remarries. A number of other social insurance programs cover small numbers of children in only some states, for example, through the provisions of the various workmen's compensation and temporary disability plans. Railroad social insurance and unemployment insurance exists in all states.

A final kind of money payment available to children in need comes through the general assistance or relief programs administered entirely by states and localities. This money has been used to supplement inadequate payments from categorical programs and to extend coverage to children, families or other individuals not eligible for any of the categorical programs. Amounts of assistance and eligibility requirements vary widely among the states.

Whether OASDI and AFDC actually benefit the poor is a matter of controversy among economists. OASDI has, in particular, been singled out as a welfare program which is so regressive that it aids the middle-class far more than it helps the working poor. Public assistance programs like AFDC seem to be definite cash transfers from the middle-class to the poor, but some argue that even these programs do little to equalize incomes.[5]

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[5] See H. Wilensky and C. Lebeaux, Industrial Society and Social Welfare. New York: The Free Press, 1965.

Service Programs. Current services for the welfare of children in need, apart from direct money payments, can be classified as medical or dental care, food programs or child welfare services.[6]

Some medical care for children is provided locally by private and public hospitals and clinics financed by state and local governments. Children on AFDC, those in families on other public assistance, and those deemed needy by state eligibility standards are entitled to health care through Medicaid, which is administered by states under a matching formula. Federal matching varies from 50 to 83 per cent, depending on the scope of services and state eligibility standards. Other parts of the Social Security Act provide grants-in-aid to states and project grants to encourage states, towns, and other groups to work toward the prevention and treatment of handicaps, birth defects, and physically debilitating diseases; to conduct programs to reduce infant and maternal mortality; to provide well-child care including dental care; and to advise on family planning. Federal funds with a 50% matching requirement are available for Maternal and Child Health ($3.8 million in 1936; $59.3 million in 1971). Additional funds are provided under Maternal and Infant Care ($38.6 million in 1971) and Children and Youth ($43.8 million in 1971). Crippled children's program funds ($58.6 million in 1971) are used by states for case-finding, diagnosis, treatment and prevention. Mental health and hygiene funds come from a wide variety of state and federal programs, such as research and development at the National Institute of Child Health and Development and the National Institute of Mental Health, community mental health center construction and staffing, and grants-in-aid to states under the National Mental Health Act. Many education and delinquency prevention programs also have important mental health and hygiene components. Finally, special health programs are funded for Indians, migrant children, and children living in poverty areas served by comprehensive neighborhood health centers and by Head Start.

Emergency food for starving and hungry children has always been provided locally by public and private agencies. Since the New Deal, provision of food for the needy has become a large item of public expenditure. The purpose of food programs expanded in the 1930's to include stabilizing the prices of foodstuffs in the market as well as feeding the hungry. Its purpose has more recently been extended to afford permanent adequate nutrition for children. The major food programs today involve the federal government in cooperation with states and local governments, with school systems, and with non-profit private and public agencies concerned with child welfare and child development.

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[6] Child welfare services generally aim to supplement situations where there is a lack of adequate parental care. They seek to (1) provide substitutes for parents either partially or wholly as in adoption, foster family care and institutional care, (2) supplement parental care through mechanisms such as family and group day care or homemaker services, and (3) support or reinforce the ability of parents through protective services of neglected and abused children (counselling, social services and if necessary, temporary or permanent removal), services to unmarried mothers (prenatal medical care and counselling), parent education and family casework.

Supply to needy families of certain kinds of food began in the Depression under the Commodity Distribution Program. Until the 1960's, the emphasis was simply on offering what was available under the price support and surplus disposal operations of the farm program. Since then, more emphasis has been placed on providing foods that would improve families' nutritional level including proteins, fruits and vegetables and special foods for pregnant women and infants.

Food stamps, which had been tried in the Depression and War years, were revived in 1961. States determine eligibility requirements, local communities can opt to participate, and private individuals purchase the subsidized stamps. In 1971 the food stamp program served about 8.8 million people in 45 states and the District of Columbia. There is now a family food assistance program, either surplus food or food stamps, in every one of the 1000 lowest-income counties in the United States.

A national school lunch program has been operating since 1946, but the benefits did not always accrue to the children in poor school districts because of matching requirements that some schools and children were not able to meet. In recent years some of the inequities of this program have been remedied. Although costs are still generally shared by all levels of government and by school children, certain exceptions have been made in the law providing special assistance via the state to schools in poverty districts for food-service equipment and free or reduced-price lunches and milk to poor children. Free or reduced-price lunches (and some breakfasts) were offered to over 6 million school children in the 1970-71 school year, and the federal government is encouraging states to initiate lunch programs for preschool children as well.

Until 1962, the bulk of child welfare services were funded by state and local governments and went to public hospitals and clinics supplemented by local private social service agencies. Before the 1962 Amendments to the Social Security Act, the major source of direct federal money for child welfare services was Section Three, Title V of the Social Security Act. However, the level of expenditure remained small ($1.5 million in 1936, $17 million in 1958). Furthermore, until 1958, Title V Child Welfare money could only be spent by states in rural areas, and in fact most of it has been used for the employment and training of staff for services. Despite this money and its use, 50% of all U.S. counties with 25% of the child population have no child welfare worker.

Since the 1962 Public Welfare Amendments were enacted, considerably more federal money has been made available for child welfare and other social services, at least for families on AFDC. The Federal contribution, while expanding to about $45 million annually in recent years, still represents only 6% of total public money spent. Much of that money has been used for training new social workers and for in-service training in an attempt to improve the quality of service and staff. The federal requirements call for a reduced AFDC caseload of 1:60, and they attempt to guarantee some social service benefits, such as protective and homemaker services, to all communities of a state.

For children on AFDC and especially for those children not eligible because of differing state definitions of need, residence requirements and so forth,[7] the relative number receiving child welfare services remains small. The number served by voluntary social agencies has declined significantly since the Depression, and the children being served are now predominantly middle class.

Conclusion

This survey of American public activities on behalf of children at risk reveals a number of steadily developing trends. The most prominent ones appear to be these:

1) A progressive extension of services by society to more and more children. There was never a time that families were completely adequate to properly care for all children. Children at risk have always been a matter of social concern and responsibility. Beginning with the 19th century, under the impact of urbanization, immigration and industrialization, the number of families incapable of adequate child caretaking and hence the number of children at risk increased dramatically, although at different rates in the various states depending on historical, geographical and economic factors.
2) A progressive enlargement of the proportion of children included as at risk through an expansion of recognized risk categories within the domain of public services.
3) An increase in differentiated categorical services.
4) A progressive transfer of the agency of public concern and responsibility, at first from private to local agencies, then from local to state agencies, and then, finally, the progressive assumption of federal responsibility.
5) The accreditation and professionalization of various kinds of child welfare roles.
6) Urban, more "developed" sections of the country taking the lead in the process of development, often by necessity.

All this movement has been anything but even. The picture is one of fitful, conflicted social movement, of decisions made and unmade, and of continuing debate. While the debate has always dealt with issues centered around the meaning of the contract between children at risk, families, and society, the language used in the debate has changed. In the decade of the 1960's the term "disadvantage" came into widespread use. Public policy for young children, especially at the federal level, became almost synonymous with solutions to the problems of the "disadvantaged child".

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[7] For an idea of the limited extent of coverage under some child welfare services: Homemaker services are available in 89 localities offered by 103 voluntary and 25 public agencies; in 13 states, there is still no legal provision for protective services in cases of abuse or neglect.

The Concept of the "Disadvantaged" Child

This final section of Chapter 2 discusses the recent emergence of the term "disadvantage" in the considerations of public policy for children. Several currently used criteria of disadvantage will be analyzed: income, ethnicity, social class and home environment, crisis, and equity. The ambiguities of the evidence which has been set forth by social scientists who argue for the existence of "the disadvantaged child" will be analyzed. The difficulties of applying certain criteria of disadvantage to policy will be explained. But beyond the ambiguities of the evidence, and more important than the difficulties of applying overlapping and, in some cases, moot criteria of disadvantage, we believe that discussions about public policy for young children are improperly constricted by overemphasis on problems of "disadvantage". Our concluding remarks, following the section on disadvantage, argue for a continued consideration of policy for young children, not in terms of disadvantage, but rather in terms of the four public purposes we have identified and discussed historically -- preparation for economic roles, assimilation, labor market regulation and care for children at risk - and in the light of changes in the "contracts" among various providers for children.

The emphasis of the recent federal programs for child development has been towards the reduction of disadvantage in early childhood. There has been much popular and scientific writing about disadvantage in childhood -- narrative writing designed to give a picture of the life circumstances of the disadvantaged child, and a more technical stream of writing intended to bring together psychological, sociological, and medical evidence that might give a more detailed and precise picture of the problems of the disadvantaged child.

As one examines the writings about disadvantaged children, it becomes clear that various discussions of such children address themselves to different populations of children. One writer speaks of neglected children, another of minority children, another of Appalachian children, another of migrant children, another of abused children, and so on. All such discussions make it quite clear that disadvantage in early childhood is quite real, but they also make it clear that the problems of disadvantage are heterogeneous. Even if there were no other problems involved in using the term "disadvantaged" this heterogeneity would be a serious hurdle for the development of public services for children -- particularly when, as now seems to be the case, we do not know the exact numbers and distributions of children who might qualify as disadvantaged under one or another standard.

In planning for services to disadvantaged children, the following questions have been considered:

1) What group or groups of children should be regarded as disadvantaged?
2) Given that a particular group of children can be regarded as disadvantaged, what are the special characteristics of those children or their environment that form the specific basis of their disadvantages?

3) Given that we can identify the special characteristics of child or environment that make up disadvantage, how much can they be changed by social action programs?
4) What should be the extent of government responsibility in forming programs to stimulate such social action?

Various possible answers to these four questions have been blurred together in some of the recent discussions of programs for children, with the net effect of oversimplifying disadvantage, i.e., confining it to the urban black child. Perhaps those who search for a single yardstick cannot tolerate the ambiguity of multiple standards. Inevitably they discover a single exclusive and inclusive standard. The modal child, the child most often explicitly or implicitly held up for discussion under the term disadvantaged, has been the urban, black child. As various discussions of disadvantage tend to run together, one can infer that this child is at serious risk of school failure, dropout status, and underemployment or unemployment in later life. One can link this child with delinquency, social dependency and poor mental health in future life. One can associate his life circumstances with birth risks, inadequate care or neglect, inadequate stimulation at home, malnutrition, high risk of accident and disease, and so forth. One can argue about whether his life chances can be improved by compensatory services or, alternatively, whether he is doomed to a poorer place in later society by an inferior intellectual heredity.

None of this discussion is completely irrelevant to the urban black child, but it is likely that such blurred discussion does a serious disservice to him,to other children, and to the national political atmosphere. It "loads" the child and his environment with a number of deficits or handicaps, not all of them proven nor, probably, provable. It tends to exaggerate defectiveness of the child and to overlook the discriminatory social environment to which he is expected to make an adjustment. Thus, it provides a ready rationalization for those who attempt to intervene through the child and fail. Failure is ascribed to defects in the child rather than to the inappropriate intervention effort or to the social obstacles not affected by intervention. Finally, it tends to oversimplify considerably the notion of disadvantage in childhood because, under a number of current definitions of that notion, disadvantage cannot be confined to the black child. He shares certain defninitions of disadvantage with other children. There are other definitions of disadvantage under which, probably, he is at no greater risk than any other child in our society.

Criteria of Disadvantage

What group or groups of children have been regarded as disadvantaged? The problem is to set forth some criterion by which we can locate some subset of children who are to be regarded as disadvantaged. The criteria now most widely used would seem to be the following: (1) income; (2) ethnicity; (3) social class and home environment; (4) crisis; and (5) equity. (See Table 2.1.) Each of these criteria has some meaning, but each contains serious problems of logic, clarity, and validity of evidence. Hence,

TABLE 2.1

Characteristics Which Should Qualify Children
as Disadvantaged for Federal Programs
(Testimony before Congressional Committee, 1964-1971)

Characteristics	Testimony by:
(1) Income	
Parents' income less than $2000 or $3000	Celebrezze, Sec., HEW Keppel, Commissioner of Education Riessman, Columbia University Shriver, OEO Johnson, President
(2) Ethnicity	
Lives in a segregated sub-culture with significantly different values, aspirations, language.	Kennedy, Senator, NY Brownell, Detroit schools Crowther, Los Angeles schools Freeman, Stanford University Yarborough, Senator, Texas Martinez, PUENTE fund Johnson, President Fischer, National Education Association Bruner, Harvard University Johnson, Project CONCERN Gover, Oklahomans for Indian Opportunity Cooney, Children's Television Workshop Commission on Civil Disorders
(3) Social Class & Home Environment	
A. Father absent or chronically unemployed. Mother hasn't time or competence to rear child. Parents expose child to severely limited range of experiences Mother is not responsible for seeing that child gets what he needs. Great stresses on parents.	Lowe, National Institute of Child Health and Development Forsyth, American Academy of Pediatrics Comer, Yale University Niemeyer, Bank Street School Lourie, Joint Commission on the Mental Health of Children Edelman, Washington Research Project Action Council M. Keyserling, economics Williams, Senator, NJ

TABLE 2.1 (Continued)

Characteristics	Testimony by:
(3) Social Class & Home Environment	
B. Child's problems go unheeded or do not receive sufficient attention because of parent absence, lack of concern, money or competence, fully committed time.	Amalgamated Day Care Center Williams, Bethany-Lenox Hills Day Care Center American Optometric Association Falck, Center for Disorders of Communication Yarborough Gardsbane, Association for Children with Learning Impairments Geiger, Tufts Medical School Johnson, President Johnson, MD, North Carolina Lourie, MD Allen, American Association for Health, Physical Education, and Recreation National Advisory Commission on Disadvantaged Children Edelman Lowe
(4) Crisis	
Some severe stresses in the family situation, even in the non-"deficient" case	Lowe Forsyth Comer Willis, Chicago schools
Orphans	Montoya, Senator, N.M. mentioned in many other statements
Migrant	Williams, Senator, N.J. Zagri, Teamsters
Gifted (!)	Vassar, Association for the Gifted
(5) Equity	
School's in child's area lack facilities	McKay, NEA

Note: The list is not comprehensive of all witnesses, and some witnesses' testimony included two or three definitions.

while it might have been appealing to develop policy recommendations beginning from a consideration of categories of disadvantaged children, it often turns out to be of questionable usefulness when the categories are fully examined.

Income. The most widely used rule for identifying disadvantaged children uses income as a standard. Head Start, Follow Through, and Title I of ESEA all identify the recipients of program benefits using income of parents as a criterion. Implicitly, at least, these programs identify poor children as disadvantaged children or, at least, as most likely candidates for federal funds for disadvantaged children.

This close association of income and disadvantage is, probably, a result of the recent development of these children's programs in the early 1960's as part of the War on Poverty. One argument, prominent at that time, was that poverty perpetuates poverty. Poor parents are unable to offer fully adequate health care, social and cognitive stimulation to their children. Furthermore, they tend to build into their children certain outlooks and attitudes that tend to make these children unable to adjust to the habits and standards of any other then the lowest socioeconomic environment. The notion of an inexorable "cycle of poverty" has been most eloquently set forth in the writings of Oscar Lewis (1966).

It seems plausible that poor parents would be likely to give their children the habits, mores, and standards of a lower SES environment, setting aside the rather intricate question of whether there is a "culture" of poverty. It also seems likely that poor parents, not free to buy health and educational services, might not provide their children with all the resources they need to be fully competitive in adult life. Nevertheless, the claim that the existence of poverty depends upon this kind of cycle is distinctly argumentative. Poverty is a sociological phenomenon, whose existence may or may not depend upon individual or psychological factors. If by "poverty" we mean the fact that there is some group of individuals occupying the lowest tenth or fifth of the U.S. income distribution, then, of course, the problem of poverty is not solvable by any device short of a complete homogenization of income in the U.S. Even if "poor" individuals are those with an income below some estimated minimal figure, only some of the components in the reasons for the poverty cycle need involve defects of deficits in the parents or the child. Poverty can also be a result of the opportunity structure of society, of the economy and of the educational system. In fact, we do not know that an attack on the negative factors of early childhood is a particularly decisive way to attack the existence of poverty in our society (Rein, 1970, pp. 221-248).

Nevertheless, this does not rule out poverty as a standard for child development programs. It is, in fact, possible that low income may serve as a useful proxy for a number of factors in childhood identified as disadvantageous in some other sense. Various risk factors in childhood may be closely associated with poverty. Furthermore, the government may choose to use income as a standard for its allocation of resources because it may want to provide "scholarships" for participation of the poor in programs not specifically directed towards the poor. In these latter cases, however, the allocation of resources to poor children is based on some definition of disadvantage other than an income definition.

Ethnicity. In the last two decades, there has been a considerable amount of social science discussion and research about the consequences of growing up as a member of an ethnic (or racial) minority in American society. For black Americans, the largest and most clearly set-off minority group, the writings of Kenneth Clark have set the terms of the discussion.

Clark argues that to be born black in America is by definition a disadvantage. The stigma of blackness is experienced by a child even before he enters school. His family structure, undermined by slavery and economic oppression especially of males, is female-dominated. Children are taught that men are no good and irresponsible. Fewer father models are present consistently to give the black boy and ideal masculine figure to identify with. Male or female, the child learns early to feel ashamed of his color. He is prepared early for future economic failure since his parent or parents, family and community share low aspirations and expectations for the future of their children. Often the adults are realistic given that the opportunity structure of society puts blacks at a disadvantage.

Once in school, the child confronts an alien world of white, majority-culture teachers and administrators and a white-oriented curriculum which formally and informally degrades or ignores the early culture and language of the black child. In turn, the child reacts with anxiety, sullenness and apathy. His boredom leads either to withdrawal or misbehavior and later, possibly, to truancy and dropping-out. Thus little is learned in school, which is reflected in lower IQ and achievement test scores. With some variation, such as substituting "culture" or "language" for color, similar arguments justify classifying other minority group children as disadvantaged (1965, and earlier works).

Following Clark's lead, researchers have confirmed that children ethnically different from majority-culture Americans perform differently on a variety of measures of child development: cognitive tests, measures of motivation, self-concept, aspiration, and so forth. These studies appear in Table 2.2, which presents a sample of the research literature demonstrating correlation between ethnic group and scores on measures of growth and development in cognitive and affective realms. However, there are difficulties of interpretation characteristic of this type of research.

First, not all minority ethnic groups do worse than the majority-white American child. [illegible] found that on some sub-scores of IQ tests Oriental and Jewish ethnic group children did better (Lesser et al., 1965). Coleman found that black children's aspirations are either as high as or higher than the aspirations of majority-white American children (Coleman et al., 1966).

Second, the effects of ethnic differences are confounded with differences in income and social class. Few studies control for the effects of these factors, and even statistically controlling in multiple regression analysis leads to difficulties of interpretation. Yet it is clear that many characteristics identified with being black or Puerto Rican or Mexican-American are stigmata of class prejudice rather than ethnic or racial prejudice.

TABLE 2.2

Ethnic-Racial Group Difference

Comparison Groups	Type of Test	Studies
White-black	cognitive	Fowler (1957) Higgins and Silvers (1958) Shuey (1958) Deutsch (1960) Osborne (1960) Price (1962) Kennedy et al. (1963) Deutsch and Brown (1964) Pettigrew (1964) HARYOU (1964) Deutsch (1964) Coleman et al. (1966) C. Deutsch and McArdle (1967) Hess and Shipman (1967)
	aspirations, values	Boyd (1952) Wilson (1959) Battle & Rotter (1963) Pettrigrew (1964) Proshansky and Newton (1966) Wylie and Hutchins (1967)
	"n-ach"	Mussen (1953) Rosen (1959) Lott and Lott (1963) Mingione (1965)
	optimism	Wylie and Hutchins (1967)
	self-concept	Mussen (1953) Lott and Lott (1963) Yeatts (1967) Gibby and Gabler (1968) Gordon (1968)
White-Indian	cognitive	Dennis (1942) Russell (1943) Havighurst (1946) Anastasi and Foley (1949)
White-Mexican	cognitive	Garth et al. (1936)
White-Italian	cognitive	Held (1941)
White-Oriental	cognitive	Darsie (1926)
Inter-ethnic (Chinese, Jewish Puerto Rican, Black)	cognitive	Lesser et al. (1965) Stodolsky & Lesser (1967)

Third, it may be that the tests and circumstances of test administration are culturally (and hence ethnically and racially) biased. Lower scores by minority-group members would not reflect deficiencies in affective of cognitive development so much as cultural and sub-cultural differences. Arguments that conventional IQ tests are culturally and motivationally biased against blacks and other ethnic minorities can be found in Cole and Bruner, 1971; Rosenfeld, 1971; Baratz and Baratz, 1970; Sroufe, 1970; Kagan and Kogan, 1970; Kagan, 1969; Stewart, 1969a; Zigler and Butterfield, 1968; Hertzig et al., 1968; Baratz and Baratz, 1968a; Baldwin, 1968; Gay and Cole, 1967; Labov and Cohen, 1967; Pettigrew, 1964; Ervin-Tripp, 1964; Greenberg, 1963; Serat and Teevan, 1961; Haggart, 1954; Eells, 1953.

In any case the use of racial or ethnic classification as criteria for determining eligibility for aid to the disadvantaged involves serious practical and political difficulties. It would be virtually impossible to create clearcut, administratively feasible ethnic and racial categories given the natural heterogeneity of ethnic and even racial groups. Furthermore, despite attacks on the "melting pot" ideology and despite moving away from strict color-blind applications of laws and court decisions, it would entail great political hazards to offer aid on a racial or ethnic basis. It is one thing for the government to use racial criteria in moving against public and private discrimination in the name of equal opportunity, as the Supreme Court did in 1954:

> To separate (Negro students) from others of similar age and qualifications solely because of their race generates a feeling of inferiority as to their status in the community that may affect their hearts and minds in a way unlikely ever to be undone. (Brown vs. Board of Education,1954)

It would be much riskier to grant compensatory aid on a racial and ethnic basis. Not only would the majority-white culture be opposed, but increasingly sensitive ethnic and racial minority groups would most certainly object to the implicit stigma attached to aid given on the basis that their culture or race was disadvantaged.

Social class and home environment. For children to develop normally, there are certain basic requirements such as food, shelter, care and affection, control and discipline, and opportunity to learn. Typically these requirements are fulfilled in the home; for the infant, almost entirely so. Schools, preschools and day care centers attempt to meet some of these needs in the older child. For many years of life, however, the family is the major nurturing and acculturating locus for the child.

We know that all homes and families are not the same. Cross-cultural anthropology informs us of amazingly wide variation in child-rearing practices and home environments throughout the world. Sociological and psychological investigations in the United States testify to considerable variation among social classes, ethnic groups and income groups. Apparently normal (but different) children result from this variation in home environment. Pathological cases of child development occur among all ethnic, social and income groups. Yet many Americans believe that certain of our home environments tend to produce "advantaged" children while others typically produce disadvantaged children.

The most recent formulation of this belief -- that home environments tend to be more or less advantageous -- comes from the work of developmental psychologists studying children's learning. They note the high correlation between social class (defined by occupational prestige, parents' level of education, location of residence) and scores on cognitive and affective tests. Children from the middle- and upper-middle class score higher on IQ and achievement tests. They tend to have greater motivation, higher self-concept, stronger feelings of competence or "effectiveness", more enriched and complex vocabulary and syntax, and so forth. (A list of various other such criteria appears in Table 2.3.) The correlation of social class with these test scores is as high or higher than correlations of test scores with income or ethnic-racial status. Equally impressive is the association between indices of home environment and test scores (Wolf, 1965; Dave, 1963; Coleman et al., 1966).

Using questionnaires, interviews, and only occasionally observation instruments in natural "experiments" and laboratory settings, researchers have noted differences in the behavior of parents -- especially the mother -- and in characteristic home situations of middle-class families and sometimes between middle and lower-class families. It has been found that middle-class children who have high IQ, high "need for achievement", or high "self-concept" are associated with families possessing certain characteristics and certain family interactions. These parental behavior and home environmental variables are then put forth as the probable cause of the better performance of the children. Attempts are then made to measure these same characteristics and interaction patterns using both middle-class and lower-class samples. Where lower-class interactions and characteristics differ from those of the middle-class families with advantaged children, the interactions of the lower-class family are put forth as the probable causes of the child's disadvantage. A summary of the differences between home environments and parental behaviors which correlate with test scores and are believed to be implicated as causal factors in the disadvantage of the lower-class child is presented in Table 2.4.

Even granting, for a moment, the acceptability of sampling procedures and the reliability of measures of family characteristics, we cannot be at all sure that these differences between middle- and lower-class families are the cause of disadvantage for their children. They may merely reflect the disadvantageous position that membership in a lower social class implies. The problem of causality is crucial since it determines what, if anything, can be done to change the child by social action programs.

Anthropologists and sociologists observe that the normal behavior of a culture or social class (including its child-rearing practices) is an adaptation to the realities of membership in a particular group. It is meaningless, in their terms, to call an entire social class "pathologic" or "pathogenic"; furthermore, intervention attempts making this supposition are bound to fail. Thus it makes little sense to teach or train mothers

TABLE 2.3

Some Proposed Psychological Criteria of Disadvantage*

Imaginative capacity (lack)	Korchin, Mitchell and Meltzoff, 1950; Campos, 1963; Dowing et al., 1965; Ames, 1966; Singer, 1966; Sigel and McBane, 1967; HEW, 1968.
Need for achievement (n-ach) (low)	McClelland et al., 1953; Mussen, 1953; Douvan, 1956; Rosen, 1956; Rosen, 1959; Veroff et al., 1960; Rosen, 1961; Lott and Lott, 1963; Nuttall, 1964; Cameron and Storm, 1965; Mingione, 1965; Atkinson and Feather, 1966; Bruckman, 1966; HEW, 1968.
Sense of external vs. internal control (external)	Crandall et al., 1962; Rotter et al., 1962; Battle and Rotter, 1963; Crandall et al., 1965; Coleman, 1966.
Anxiety about school (high)	Hill and Sarason, 1960; Sarason et al., 1960; Feld and Lewis, 1967; Katz, 1967.
Vocational and educational aspirations (low)	Boyd, 1952; Rosen, 1956; Sewell et al., 1957; Rosen, 1959; Wilson, 1959; Ausubel, 1963a; Bloom, 1965; Coleman, 1966; Proshandky and Newton, 1966; Wylie and Hutchins, 1967.
Self-esteem and self-concept (low)	Clark, 1939 (?); Deutsch, 1960; Wylie, 1963; Ausubel and Ausubel, 1963a; Pettigrew, 1965; Silberman, 1965; Coleman, 1966; Edwards, 1966; Deutsch, 1967; Kozol, 1967; Long, Henderson & Ziller, 1967; Pavenstedt, 1967; Gibby and Gabler, 1968; HEW, 1968.
Attention span (short)	Deutsch, 1960; Riessman, 1962 (?); Bloom et al., 1965.
Aggression (low)	Lesser, 1959; McKee and Leader, 1965.

* Hypothetical direction of disadvantage in parentheses.

(?) Indicates contrary finding or qualification owing to sex differences.

TABLE 2.3 (Continued)

Visual and auditory perception (less acute)	Boger, 1952; Hunt, 1961; Covington, 1962; Riessman, 1962 (?); Deutsch, 1963; Deutsch, 1965; Clark and Richards, 1966; C. Deutsch and McArdle, 1967; Gross, 1967; Melmed, 1970; Karger, 1971; Rosenfeld, 1971 (?).
Range of time perspective (short)	LeShan, 1952; Rosen, 1959 (?); Ausubel and Ausubel, 1963; Haggstrom, 1965; Miller, Riessman and Seagull, 1965 (?).
Fatalistic attitude (present)	Lott and Lott, 1963, Pettigrew, 1964; Bloom et al., 1965; Haggstrom, 1965; Miller, 1965; Wylie and Hutchins, 1967.
Sense of power -- effectance (low)	Deutsch, 1960; Riessman, 1962; Bloom et al., 1965.
Ability to delay gratification (low)	Deutsch, 1960; Mischel & Metzner, 1962; Price, 1962; Ausubel, 1963; Bloom et al., 1965; Clark, 1965; Miller, Riessman & Seagull, 1965 (?); Mischel, 1966.
Adequacy of verbal reinforcement only (low)	Terrell et al., 1959; Zigler and DeLabry, 1962; Zigler and Butterfield, 1968.
Use of language (restricted)	Bernstein, 1960; Bernstein, 1961; Hess et al., 1968; Erickson, 1969; Williams and Naremore, 1969; Baratz, 1971 (?).
Ability to use language as a tool of communication (low)	Riessman, 1962 (?); John, 1963; John & Goldstein, 1964; Bereiter and Englemann, 1966; Baratz and Povich, 1967 (?); Jensen, 1967; Entwisle, 1968; Shriner and Miner, 1968; Entwisle, 1969 (?); Baldwin and Baldwin, 1970 (?); Baratz and Baratz, 1970 (?).
Ability to speak decontextually (low)	Deutsch, 1963; 1964; 1965; Bruner, 1970; Cole and Bruner, 1971.
IQ score (low)	Binet, 1911; Weintrob and Weintrob, 1912; Stern, 1914; Bridges and Coler, 1917; Burt, 1922; Darsie, 1926; Stoke, 1927; Long, 1935; Garth et al., 1936; Saltzman 1940; Held, 1941; Dennis, 1942; Russel, 1943; Havighurst, Gunther, and Pratt, 1946; Havighurst and Breese, 1947;

TABLE 2.3 (Continued)

IQ score (low)	Murray, 1947; Anastasi and Foley, 1949; Roberts and Robinson, 1952; Mitshell, 1956; Fowler, 1957; Higgins and Silvers, 1958; Shuey, 1958; Ausubel, 1963a; Deutsch and Brown, 1964; Pettigrew, 1964a; Lesser et al., 1965; Coleman et al., 1966; Fischer, 1966; Jensen, 1969.
Achievement scores (low)	Milner, 1951; Deutsch, 1960; Sexton, 1961; California Elementary School, 1962; Deutsch, 1963; Hill and Giammateo, 1963; Weiner and Feldman, 1963; Havighurst, 1964; Weiner and Feldman, 1964; Bloom et al., 1965; Coleman et al., 1966.
Conceptual thought ability (low)	Sigel and Olmsted, 1967.
Cognitive style (non-analytic)	Gardner et al., 1959; 1960; Riessman, 1962; Hess and Shipman, 1965; Fowler, 1966; Sigel et al., 1967; HEW, 1968; Kagan et al., 1970.

TABLE 2.4

Some Proposed Characteristics of Disadvantageous Home Environments*

Family Characteristics	Relevant Studies
Parent's educational level (low)	Jones, 1956; Dave, 1963; Wolf, 1965; Roserberg, 1965 (?).
Parent's income (low)	Jones, 1956; Wortis et al., 1963; Dave, 1963 (?); Wolf, 1965 (?); Hess and Shipman, 1965 (?); Coleman et al., 1966; Honzik, 1967.
Family socio-economic status (low)	Douvan, 1956; Rosen, 1956; Rosen, 1959; Veroff et al., 1960; Rosen, 1961; Nuttall, 1964; Cameron and Storm, 1965; Bruckman, 1966. (with n-ach) Katz, I., 1967 (with anxiety). Davis and Havighurst, 1947; Havighurst and Breese, 1947; Murray, 1947; Jones, 1956; Fowler, 1957; Havighurst, 1961; Sexton, 1961; Riessman, 1962; Montague, 1964; Hess and Shipman, 1965; Lesser, Fifer and Clark, 1965; Coleman et al., 1966; Willerman, Broman and Fiedler, 1970; Golden et al., 1971(?). (mental score or achievement).
Family size (large)	Coleman et al., 1966.
Time in urban environment (short)	Klineberg, 1935; Machover, 1943; Lee, 1951; Teahan and Drews, 1962; Klineberg, 1963; Coleman et al., 1966.
Father presence (not)	Burt, 1929 (?); Bach, 1946; Sears, 1951; Nye, 1957 (?); Miller, 1958; Lynn and Sawrey, 1959; Deutsch, 1960; Bronfenbrenner, 1961; Mischel, 1961 (?); McCord et al., 1962; Ausubel and Ausubel, 1963; Clark, 1965; Hauser, 1965; Kriesberg and Bellin, 1965 (?); Moynihan, 1965; Coleman et al., 1966; Edwards, 1966; Hetherington, 1966; Parker and Kleiner,

* Hypothetical direction of disadvantage in parentheses.

(?) Indicates that differences between social classes were not found or that such differences did not correlate with a measure of child disadvantage.

TABLE 2.4 (Continued)

Father presence (not)	1966; Pedersen, 1966 (?); Tuckman and Regan, 1966 (?); Barclay and Cusumano, 1967 (?); Honzik, 1967; Lewis, 1967 (?); Lewis, 1968 (?); Sutton-Smith et al., 1968; Blanchard and Biller, 1970; Biller and Bahm, 1970 (?); Herzog and Sudia, 1970 (?); Hetherington and Deur, 1970; Santrock, 1970.
Crowding (present)	Wortis et al., 1963; Deutsch, 1967; Rietz and Rietz, 1967; Gordon, 1968.
Noise, confusion (present)	Caldwell, Heider and Kaplan, 1966 (?); Wachs, Uzgiris and Hunt, 1967; Klaus and Gray, 1968.
Lack regularity, temporal and spatial organization; uncertainty and disorganization (present)	Mischel, 1966; Minuchin, 1967; Pavenstedt, 1967; Schoggen, 1967; Zigler and Butterfield, 1968.
Intellectually stimulating toys; books (lacking)	Bing, 1963; Dave, 1963; Wolf, 1965; Freeberg and Payne, 1967; Rietz and Rietz, 1967; Garber, 1968.
Social and recreational facilities (lacking)	Abrams, 1966.
Unstimulating home and neighborhood environment	Deutsch, 1963.
Family Interactions	
Time in verbal interaction (mother-child)(inadequate)	Milner, 1951; Whipple, 1962; Bloom et al., 1965; Freeberg and Payne, 1967; Horner, 1968; Kilbride et al., 1971 (?); Streissguth and Bee, 1972.
Inconsistency, lack regularity (mother-child)(present)	Klatskin, Jackson and Wilkin, 1956; Roll, 1962; Dave, 1963; Wortis et al., 1963; Marans and Lurie, 1967; Rietz and Rietz, 1967.
Mutuality (mother-child) (lacking)	Havighurst, 1964; Hess and Shipman, 1965; Kamii, 1965; Baldwin and Baldwin, 1968; Horner, 1968 (?); Baldwin and Baldwin, 1970.
Guidance in goal-seeking (mother-child)(lacking)	Silberman, 1964; Freeberg and Payne, 1967; Minuchin et al., 1967; Shoggen, 1969.

TABLE 2.4 (Continued)

Level of cognitive operation and style (mother-child) (low)	Dyk and Witkin, 1965; Hess and Shipman, 1965; Pavenstedt, 1967; Gordon, 1968.
Demoralization (father-child) (present)	Silberman, 1964; Clark, 1965; Hauser, 1965; Rosenberg, 1965.
Child-rearing attitudes (authoritarian)	Whiting and Child, 1965; Sears et al., 1957 (?); Warner et al., 1958; Zuckerman and Barrett, 1960; Freeberg and Payne, 1967; Honzik, 1967; Roll, 1967; Gordon, 1968.
Permissive practices **	Davis and Havighurst, 1947; Baldwin, 1955; Sears et al., 1957; Bayley and Schaefer, 1960; Miller and Swanson, 1960; Kagan and Moss, 1962; Riessman, 1964; Bloom et al., 1965; Hess and Shipman, 1965; Edwards, 1966; Hauser, 1966; Katkovsky et al., 1967; Lewis, 1967; Bradshaw, 1968; Lewis, 1968.
Emotional security, self-esteem "internal control"; high impulseness (lacking)	Strodtbeck, 1958; Dyk and Witkin, 1965; Coleman et al., 1966; Marans and Lurie, 1967; Pavenstedt, 1967; Bradshaw, 1968; Gordon, 1968.
Interest in and acceptance of child (lacking)	Ausubel and Ausubel, 1963; Freeberg and Payne, 1967; I. Katz, 1967.
Appropriate reinforcement behavior (mother-child) (lacking)	Hart, 1957; Bronfenbrenner, 1958; Lipset, 1959; Chilman, 1955; Hess and Shipman, 1965; Kamii, 1965; I. Katz, 1967; Stolz, 1967; Bradshaw, 1968 (?); Horner, 1968 (?); Smilansky, 1968; Schoggen and Schoggen, 1968; Bee et al., 1969; Tulkin, 1970; Lewis and Wilson, 1971(?); Tulkin, 1971.
Verbal environment in home (poor)	Davis and Havighurst, 1947; Milner, 1951; Lynn and Sawrey, 1959; Bernstein, 1960; 1961; Bing, 1963; Dave, 1963; John and Goldstein, 1964; Hess and Shipman, 1965; Kamii, 1965; Wolf, 1965; Deutsch, 1967; Freeberg and Payne, 1967; Pavenstedt, 1967; Rietz and Rietz, 1967; Bradshaw, 1968; Gordon, 1968; Baldwin and Baldwin, 1970 (?); Tulkin, 1970; 1971; Streissguth and Bee, 1972.

** So many conflicting claims are made that no further specification can be made.

TABLE 2.4 (Continued)

Academic guidance; stress on education (lacking)	Sears et al., 1957; Strodbeck, 1958; Ausubel, 1963; Bing, 1963; Dave, 1963; Kriesberg and Bellin, 1965 (?); Wolf, 1965; Deutsch, 1967; Freeberg and Payne, 1967; Honzik, 1967; Rietz and Rietz, 1967; Garber, 1968 (?).
Emphasis on peer or family ties (peer)	Bernstein, 1961; Ausubel and Ausubel, 1963; Bloom et al., 1965; Short and Strodtbeck, 1965; Minuchin, 1967; Pavenstedt, 1967; Bernstein, 1970.

to spend two more hours a day positively reinforcing each of their children when time pressures for survival behavior make such behavior impossible. Likewise positively reinforcing children to act on reasoned explanations in day care centers will not greatly affect children who are commanded without reasoned explanations at home.

A child's performance on various tests of cognitive and affective development depends not only on his cognitive or affective competence but also on his familiarity with the circumstances of test administration, his motivation to do well on the test and on his understanding of the nuances of language in which test directions are given. All of these latter factors are biased toward the middle-class pattern. Thus a low score on an IQ or self-concept test might not mean that the child has low "intelligence" or "self-esteem" but rather that he is not comfortable, familiar or motivated enough to do as well as his middle-class counterpart.

On other characteristics where the lower-class child is said to be disadvantaged, such as density in household, noise, or stimulating environment, social scientists have not been able to devise reliable measures which show or suggest causal relationships to outcome measures in child development. Most child-rearing research relies on questioning and interviews which are subject to limitations such as response bias, answers structured by the form of the questions, errors in recall and so on (Yarrow et al., 1968). Even where observational instruments are used, sampling issues such as which units of behavior are measured, how the behavior is sampled, in what situation is the family interaction studied as well as controls for extraneous variables limit generalizability (Streissguth and Bee, 1972).

There is not always an unambiguous relationship between parental behaviors and differences in scores on tests. Lower-class mothers are said to use physical punishment more than middle-class mothers. Middle-class mothers appeal more to guilt; lower-class to shame. Middle-class mothers toilet train later. Lower-class children score lower on "delay of gratification" procedures. The interpretation of and even the semantics of naming of differences like these always runs against the lower-class practice, since those interpreting are themselves middle-class. In fact, for dozens and dozens of such attributes, our notions of whether they are good, bad, or indifferent are extremely vulnerable.

Thus, given the tenuous evidence showing a causal relationship between home environment and social class on the one hand and retarded child development on the other, it would seem ill-advised for public policy to be based on either home environment or social class. In addition, one would confront serious problems of obtaining reliable and standardized measures of social class or home environment, given the considerable disagreement about the meaning and measurement of these concepts. The use of any standard of home environment would, furthermore, entail invasion of privacy which would almost certainly be legally and politically unacceptable. While we know that growing up in a lower social class and with particular home environments associated with social classes tends to make children systematically different (at least on test scores), it might not be feasible or particularly useful to base public policy for children on an attempt to eradicate class differences by changing children or their homes.

Crisis. While definitions of crisis vary among individuals within the same social and ethnic group and between groups, it is possible to identify events which most people would agree cause either physical or mental disadvantage in a child. Such crises can affect the child either directly or indirectly, through his family. Crisis as used here, does not refer only to situations of limited duration.

The most dramatic family crisis for a young child involves the absence of a parent -- especially the mother -- owing to death, desertion, divorce or other involuntary separation such as hospitalization. Likewise, circumstances which force the mother to spend a large part of her time away from the child when no adequate substitute is available are generally regarded as severely disadvantaging the child, again especially if he is very young. Physical or mental illness which impairs normal functioning is also regarded as a severe crisis causing disadvantage.

Pediatric medicine has come to recognize the interrelatedness of physical and emotional sickness in children confronted by such crises. Within the category of pyschosocial deficiency or excess (sometimes referred to as deprivation and intoxication), medical doctors have diagnosed a variety of illnesses in children related to family and individual crisis; some examples are criminal neglect (Siler and Kempe, 1959), deprivation dwarfism (Silver and Finkelstein, 1961), emotional deprivation (Powell et al., 1967; Rose, 1969),hospitalism (Spitz, 1945; 1946a; 1946b; Coleman and Provence, 1957); maternal deprivation (Bowlby, 1961; Glaser and Eisenberg, 1956; Yarrow, 1961; Pattan and Gardner, 1962; Whitten et al., 1969), psychologic and psychosocial malnutrition (Talbot, 1963), sensory deprivation (Soloman et al., 1957; Krieger and Sargent, 1967), social isolation (Davis, 1947), abused child, battered child, maltreatment syndrome and physical abuse (McHenry et al., 1966; Reinhart and Elmer, 1964; Elmer and Gregg, 1967; Simons et al., 1966; Gil, 1970; De Francis, 1963; Kempe et al., 1962; Harper, 1963; Milowe and Lourie, 1964; Fontana et al., 1963; Silver and Kempe, 1959; Bain, 1963).

Summarizing this research, Talbot (1971) notes that "though poverty is a frequent concomitant, the psychosocial deprivation and intoxication syndrome occurs among the well-to-do and highly educated as well as the financially and educationally disadvantaged" (p. 67).

That severe crises cause disadvantage, at least in the short run, is unarguable. Long-term consequences of psychosocial deprivation or intoxication are not always demonstrable. Indeed it is often said, and may even sometimes be true,that adversity strengthens the child and his family. It is probably neither desirable nor feasible to prevent and/or remedy all crises. Yet clearly there are many crises that we would want to prevent or remedy. The justification for public intervention in such cases is not just that inaction would have serious long-range consequences for the child and for society. Compassion for children at risk is a time-honored and reputable justification for government intervention.

One such case is that of the loss of the mother where there is no other family member or relative willing or able to care for the child properly (Reid, 1959; Caldwell, 1967; Powell et al., 1967; Chilman, 1966; Coles, 1964). Another is the case where the child must be removed from the home because of the high risk of continued severe deprivation or injury through gross parental neglect and abuse. Parent substitution either by institutions or foster homes has been resorted to in such cases. There is evidence that such remedies can function well as a source of mothering (Talbot et al., 1947; Davis, 1947; Fried and Mayer, 1948; Witmer et al., 1962; Hollowell and Gardner, 1965; Talbot, 1965; Glaser and Eisenberg, 1956; Eisenberg, 1962; Fanshel and Maas, 1962; Fontana et al., 1963; Eisenberg, 1965, 1968; Silver and Finkelstein, 1967). But present provision for such well-run care is atypical and expensive.

Where the mother is alive and the head of the household, but is physically, mentally or financially handicapped, government efforts take the form of financial support and occasionally child care, homemaker services or other supplementation of parental caretaking. An argument can be made that the approximate monetary cost of parent supplementation even for the first 15 years is far cheaper than the cost of managing a mentally handicapped child, educating a youth out of delinquent behavior or housing him in a correctional institution, or carrying a person as a dependent adult for approximately 50 years (Talbot, 1971, pp. 48-51). What this line of reasoning ignores is the possibility that the preventive remedy of parent supplementation may not bring about the desired result. Most children, even most of those unfortunate enough to have a physically, mentally or financiall handicapped mother as head of household, are not going to become socially dependent or delinquent, with or without public intervention. Aiding all to help some is a compassionate approach, but it may not be the wisest use of resources.

Equity. One child goes to a school in a system that spends $400 per pupil each year, while another child's school system spends $1500 per pupil. According to the equity argument, the former child is at a disadvantage regardless of whether money spent per pupil affects IQ, achievement, happiness, or any other possible measurable or unmeasurable consequence; resources should be allocated equally, and when they are not, *ipso facto*, a disadvantage exists.

Equity relates to differences by assuming that all children have legal and moral rights to equitable distribution of publicly distributed resources for which they categorically qualify.

There are many cases similar to the simple equity argument above. It has been claimed that the government gives preference in matter allocation of resources to particular ethnic or racial groups, social class and income groups in education,housing, taxation, and health policy. Where the inequity is claimed to be a material input resource, it is simple enough to measure the allocation of public resources. Where differences exists, it is argued, public policy surely should work towards equalizing the discrepancy between the resources provided for disadvantaged groups and greater resources provided for advantaged groups.

Complexity arises, however, when it is also argued that since the private sector deprives lower-income, or black or lower-class groups, public policy ought to compensate these privately disadvantaged groups. It is also true that some children are naturally disadvantaged; some are born retarded or blind; others develop handicaps later. Is it fair to spend equal amonts of money per child regardless of natural handicaps? An even more difficult argument is the argument for "spiritual" equity. Claims are made that there are unmeasured and unmeasurable differences in the treatment of the poor, the ethnic minorities and the lower-class populations by public authorities. Even in school systems spending equal amounts of money for black and white children, the frequent attitude of school personnel toward black children (prejudiced, hostile, assuming inferior ability) causes disadvantage. Another category of equity arguments claims that, so long as there is difference in output between groups, an inequity exists. Thus the fact that poor or black children have higher infant mortality rates and higher school drop-out rates, regardless of the amount of public money spent on their health care or education, is evidence of their disadvantage.

Equity arguments alleging disadvantage because of unequal input resource allocation are not based on causal "scientific" claims. A demand for equal amounts of money spent per child in urban and suburban school districts need not address itself to the issue of whether more money leads to higher school achievement. Even if per pupil expenditure has little or no effect on achievement or on any other measurable and legitimate output of schooling, one might still argue that it is unfair public policy for some school systems to spend three times as much for a child as another. Whatever the resolution of the more complex equity arguments, it seems reasonable that public policy ought to work toward eliminating systematic material resource input inequalities in present areas of public expenditure for children.

Summary

We are confronted with a body of evidence and speculation which attempts to define the boundaries and partitions of disadvantage. Different evidence places disadvantage in overlapping and elusive categories - we have identified five - none of which seems wholly satisfactory in terms of logic, clarity or validity of evidence.

Much recent work in child development has been addressed to this set of problems: laboratory or natural experiments concerned with mother-child interaction, testing, evaluation, discussion of critical periods for learning and emotional development. It is widely believed that the findings from this work have major policy implications and thus can structure policy thinking.

We do not believe that the *current* evidence on disadvantage can support and structure policy recommendations. It is clear that disadvantage is not a simple phenonomenon. But what combination of which categories of circumstances should trigger social intervention cannot be answered from a review of the evidence. We believe that serious dangers to the disadvantaged as well as advantaged population stem from the popular misuse of the word disadvantage as a substitute for careful analysis of the different meanings of the term. Beyond this, there is a serious danger that the problem so stated is likely to be conceptualized as one of individual maladjustment to society, i.e., as somehow being the child's fault. Instead we prefer to regard it as a problem of imbalance between social demands and social provision, on the one hand, and of family capacity and the child at risk or in need of vocational preparation or social assimilation on the other.

Conclusion

In this chapter, we have endeavored to explore public purposes about child development, that set of purposes which appears to have more or less consistently governed public interest in child development and publicly supported programs of intervention.

Social intervention seems to have been historically developed around four thematic purposes:

1. Preparation for adult economic roles. There has been a consistent concern to offer intellectual and moral upbringing directed towards bringing the child into a vocation and an economic role in society.
2. Assimilation into a shared American value structure. There has been a consistent concern to develop in children values, standards, and morals that will be harmonious with an orderly society, and to make the child see himself as an American and value the United States.
3. Partial regulation of the labor market. There has been a persistent tradition of concern and public activity having to do with the child in relation to the labor market. There have been several issues: (1) protection of the child from abuse through early labor, (2) competition between children and adults for available work, and (3) the provision of care for the child in schools, nurseries, and day care centers to free the mother for work.
4. Care for children thought to be in crisis or at risk. There has a progressively differentiating set of public programs for children affected by family or health crises, provided partly on a compassionate basis and partly as an investment against the child's later emergence as a social dependent or delinquent.

These four thematic purposes appear to have been constant historically, but to have been expressed in different public programs as society changed. The most relevant social changes appear to have been brought about by progressive industrialization and urbanization and, in fact, most new directions in public programs for children seem to have begun in the more industrialized and urbanized sectors of the country. Generally, the pattern of change is that child care and child rearing functions once vested in the family have been partially transferred to public providers -- private charities, local, state, and federal levels of government. Generally, among the non-family providers, there appears to have been a transfer of responsibility from private sources to government and, within government, towards the larger units of government.

It seems likely that the present somewhat heterogeneous classification of children as disadvantaged can only be understood with reference to these public purposes. Various public programs for children express these purposes and their success or failure is ultimately a question of their satisfaction of these purposes. But the purposes are by no means explicit; most people do not now think of schools as providers of day care or as factors in the regulation of child labor. Within what is now explicit about the purposes of the programs, there is now and always has been disagreement about how much the government should take unto itself -- what degree of crisis it should recognize, how much it should prevent child labor, and so on.

Even if the public purposes are not perfectly clear and perfectly agreed upon, it seems likely that the designation of children as in need of public support -- that designation by no means clear itself -- depends upon the fact that their development is not in conformity with those purposes From a social point of view, "optimal child development" is a development in harmony with those purposes, and disadvantage is a condition that seems to violate them.

There appear to be five criteria now used to designate children as disadvantaged either in legislation or in public discussion. Those criteria are (1) income; (2) ethnicity; (3) social class or home environment; (4) crisis; and (5) equity. These are not perfectly distinct criteria logically. Furthermore, children qualifying as disadvantaged under one criterion will usually qualify under another; the criteria are correlated. However, it can be argued that unless one uses all the criteria: (a) one will miss inclusion of all the children who are designated by one source or another as disadvantaged; and (b) one will, for a given child, miss some aspect of his development or circumstances that constitutes part of his disadvantage.

There has been some tendency in recent discussions to try to interpret disadvantage in childhood as a matter of "deficits" or "deprivations" that can be diagnosed in the child or his circumstances. There has been a countervailing tendency to dismiss this kind of analysis and instead to diagnose many problems of the child as problems of the "system". Looking at the network of providers for children -- family, schools, hospitals, public agencies -- it seems reasonable to conceive of a system of informal, normative contracts existing among providers and dividing their responsibilities. The historical development of public programs for children seems to have been a matter of progressive renegotiation of these contracts -- for example, the contracts between the family and various public institutions. The most baffling kinds of disadvantage in childhood, right now, probably occur at the margins of these contracts. Schools and hospitals right now are probably geared to the practices and caretaking norms of the middle class family. Is it the responsibility of the Spanish or Chinese-speaking family, for example, to teach the child English to get him ready for school, or is it the responsibility of the school to find ways to teach in the child's language? To what extent should health providers pick up preventive and follow-through health measures when there is some family inability to do so? Generally, the leading edge of development of public programs for children might be seen as an effort to more solidly implement public purposes in child development through change in public institutions or alternatively through support of the family's care of children.

Chapter 3: Critical periods and early experience

Summary

Many child development intervention programs for children under six years of age have implicitly or explicitly been based on a notion of the "criticalness" of the early years of life.

The scientific concept of critical periods in human development originated in the fields of embryology and ethology. While the present evidence for critical periods in embryology remains unquestioned, recent research has modified findings about critical periods in ethology. For example, imprinting in animals is now believed to occur at optimum or sensitive periods rather than in a critical period, implying no irreversibility.

In human development the most influential theories, psychoanalytic (Freudian and post-Freudian) and cognitive (Piagetian) psychology, have both been interpreted as implying notions about critical or at least sensitive periods. Although the theories are supported by reported observations and data on children, in neither case have strict, direct scientific tests of hypotheses derived from the theories been adequately or extensively performed.

The "hard data" about critical periods in development come from a large set of early experience studies with animals and humans.

Evidence from animal studies supports the notion of some form of sensitive periods. The evidence is clear only for socio-emotional and physiological development. It is not so clear for intellectual development. Even for socio-emotional development, precise time periods are difficult to identify and may vary considerably within the same species. Effects are found primarily by the use of extremes in treatment.

Evidence from human studies is suggestive about the effects of deprivation; little is known with any certainty about the effects of enrichment and early stress.

The majority of studies done on maternal deprivation and separation report only short-term effects of institutionalization. For the most part the data are interesting but inconclusive and of little help in establishing causal links between early experience and later developmental status.

The results of the studies do suggest that the immediate effects of institutionalization are greatest between age six months and three years, and are manifested by retardation in language, motor and emotional development. Few long term effects are found unless the deprivation itself is long term.

There have been few experimental attempts to enrich a child's environment outside of institutions until the mid-1960's. The studies of Skeels and B. White, frequently cited as evidence of plasticity in human development, are not conclusive about the possibility of enrichment of the average child.

At the present time, it is clear that extreme or seemingly minor alterations in environment can have immediate, if not long term, developmental consequences in animals and humans. (1) Physiological changes in brain weight and chemistry may result; (2) changes in perceptive and cognitive functioning are indicated as a result of these changes; (3) early experiences with other members of the species, peer and parents affect later social and sexual development; (4) early perceptual experiences may be crucial in the normal development of sensory systems and may be dependent upon motor experiences for input; (5) early stress seems to affect the development of stress (hormonal and neurological systems); and (6) the more severe the deprivation, the more domains seem to be affected.

Heritability of IQ

The standing alternative to the critical period approach is the hereditarian approach. Recent public debate has dwelt on the possible modification of IQ especially for black children.and has revived the argument that their lower IQ scores may be unmodifiable. Yet this debate extremely oversimplifies the issues surrounding child development programs and finds conclusiveness in the available literature which does not exist.

Though it is likely that the heredity-environment IQ argument will continue to be debated, the data now do not determine a clear decision. What we know is that (1) the IQ test score has some significant hereditary component; (2) differences in IQ among individuals of differing socioeconomic status are likely to reflect in part hereditary factors; (3) racial differences in IQ quite conceivably could reflect genetic factors but one cannot justifiably use indices of heretibility based on white data to make judgments about minority members of a society who through social discrimination are crowded towards lower socioeconomic status; (4) no scientific data precludes the possibility of an elevation of IQ through environmental manipulation. No scientific data proves the possibility.

Chapter 5: Critical Periods and Early Experience

Many of the current educational programs being implemented for children under six years of age have been undertaken because of beliefs about the importance of reaching children while they are young, in order to exert a maximum positive influence on their development. The specific rationales have been phrased in varying terms and have had differing theoretical underpinnings, but all have embedded some notion of the "criticalness" of the early years of life. The purpose of this section is to review some of the empirical and theoretical literature concerning the "critical period" concept and the impact of early experience on adult functioning.

> The fact that experiences of an organism early in life exert a pervading influence on its behavior later in life is often given the status of a truism. Actually, there now exists a wealth of experimental studies appraising the effects of various early environments, ranging from extremely deprived to greatly enriched, on the subsequent learning and intellectual abilities of animals. Generalizations drawn from this literature have led to the position that deprivation rearing attenuates all learning capacity, while rearing in enriched environments facilitates all learning. Until recently, discussions of these deprivation and enrichment positions were limited to the debate of developmental theorists. However, the initiation of a federally supported program (the Head Start program) designed to enrich the lives of some children exemplifies the extent to which these generalizations concerning the effect of enriched early experience have penetrated our thinking. (Gluck & Harlow, 1971, p. 103)

We shall first discuss the origin and use of the concept of critical periods, and briefly outline psychoanalytic and cognitive developmental theories with respect to their treatment of the effect of early experience on later development. Then both animal and human studies of the effects of early experience will be reviewed. Studies performed specifically to investigate critical periods and those concerned more broadly with early experience are included. The major types of studies have involved deprivation, enrichment, and stress. Finally, we shall summarize and discuss the current heredity vs. environment controversy centered around the measurement of IQ.

The Concept of Critical Periods in Early Development

The concept of critical periods in development originated in two distinct fields -- embryology and ethology. In embryology the term refers to the time during which an "insult" may have an irreversible effect on the latter form and functioning of an organ or organ system. The critical period is the period during which the organ is developing; the more rapidly it is developing, the more vulnerable it is. A biological insult during this period will interfere with the normal development of the organ and will likely result in abnormalities. If the insult occurs before the organ has begun to develop or after development is complete, however, little damage will result.

In ethology the critical period refers to a circumscribed period of development during which a particular learning can occur. One of the most widely publicized phenomena associated with critical periods in animal behavior is imprinting--the phenomenon in which newly hatched precocial birds follow the first moving object they encounter. Originally, it was thought that imprinting was restricted to a very short time span and was irreversible.

Thus, use of the term in both fields refers to a time span during which future functioning can be irreversibly altered by a specific event occurring during that period. Evidence for critical periods is clear at the cellular level for the processes of nerve differentiation, cell maintenance, and dendritic and synaptic growth (Hubel & Wiesel, 1965; Levi-Montalcini, 1964). Evidence is also clear for critical periods in embryological (prenatal) development for both animals and humans. For example, German measles (rubella virus) in a pregnant mother is clearly connected with birth defects such as blindness in the infant (Mintz, 1958); radiation (Yamazaki, 1966) and chemical substances taken by the mother, such as thalidomide, result in birth defects (Dagg, 1966; Arena, 1964). However, evidence to support critical periods in postnatal development at the behavioral level is not so clearcut. Within the field of ethology, there is increasing doubt that imprinting is irreversible.

By analogy to the fields of embryology and ethology, psychologists have reasoned that there may be periods in the postnatal ontogeny of organisms during which certain environmental stimuli will exert their maximum effect on some physical or behavioral characteristics of the organism. These stimuli will either be ineffective or less effective before and after this "critical period". In particular, Bloom (1964) has asserted that the period of maximum influence of an environmental stimulation on later behavioral characteristics is that time during which organizational processes of growth are proceeding most rapidly. By definition, a critical period represents the time span during which the largest effect can be produced by the smallest change in conditions. Psychologists have also been concerned about the reversibility of behavior patterns which do or do not develop during critical periods in postnatal development. In general, they have asserted that behavior patterns become relatively fixed during their critical period in development and remain stable thereafter. But in the field of human development, as in the field of ethology, there is some doubt that periods exist which delimit the only time where singular and irreversible changes can occur. Thus it seems wise to follow the lead of the ethologists who are now using the term "sensitive period", rather than "critical period", to avoid the connotations of finality inherent in the embryological meaning of the critical period concept (Denenberg, 1972). The present paper will utilize the term critical period in its original embryological meaning. Other periods of apparently major environmental influence in which events do not necessarily have an irreversible effect will be called optimal or sensitive periods.

Using this definition, we move toward a separate body of literature which is concerned with the effects of early experience. This literature reveals less concern with the precise timing of an intervention and with its irreversible quality, and more concern with whether or not specific kinds of early experience have, in general, long lasting effects on the behavior of the organism. Within the area of human development, more research has been conducted on the effects of "early experience" than on putative "critical periods".

Theories of Human Development Stressing Early Experience

Analytic. One of the earliest and most ingrained theories stressing the importance of experiences during early childhood in the formation of the adult personality is Sigmund Freud's genetic theory of the development of the sexual instinct, presented in "Three Essays on Sexuality" (Freud, 1905). According to Freud, the human personality is made up of three systems which are in balance or harmony in the healthy adult. These three systems are the id, the ego, and the superego. The form of energy which operates these three systems is psychic energy, the total amount of which makes up the instincts. The instincts are present at birth (innate) and give direction to psychological processes; their goal is the gratification of bodily needs.

Of the three systems of personality only the id is present at birth. It is the seat of the instincts and, therefore, of all psychic energy. The main function of the id is the relief of tension or gratification of needs by means of reflex action on wish fulfillment. As such, it operates according to the pleasure principle. It is a product of our biological heritage.

The ego develops after birth in order to perform transactions between the person and his environment for the satisfaction of needs. It operates in accord with the reality principle, whose aim is to postpone the discharge of psychic energy until the actual object which will satisfy a need has been discovered or produced. As such, it is the personality's executive and a product of objective reality.

The third system, the superego, comprises the moral or ideal functions of the personality. It is made up of two parts, both derived from a person's parents. The ego-ideal corresponds to the child's conception of what his parents consider to be morally good; it strives for perfection. The conscience corresponds to the child's conception of what his parents consider to be morally bad; it opposes both the id and the ego. The superego is a product of socialization and cultural heritage.

Freud's theory of personality development concentrates on the development of sexuality in psychosexual stages that are linked firmly with all epigenetic growth. Man's instincts are genetically determined psychic constituents. Sexual instincts have their sources in various bodily zones, called erogenous zones. The three primary erogenous zones are the mouth, the anus, and the genitals. During different stages of early childhood sexual tension becomes focalized in these erogenous zones, each of which is associated with the satisfaction of a vital need as well as pleasure.

At birth, the focal zone is the mouth. Therefore, the first stage of personality development is designated the oral stage; it comprises approximately the first year and a half of life. During the oral stage the child's chief sources of pleasure are mouthing, sucking, and biting. These are integrally tied to one of his first experiences of tension--hunger. Both oral pleasure and the relief of hunger are highly dependent on an external agent, the child's mother. The ability of the mother to fulfill her child's oral needs as well as her method of fulfilling them determine the amount of anxiety or displeasure the child will experience both in the relief of tension and in his relationship to the mother. Consequently, his relationship to the world will be affected as the ego develops.

The second stage, the anal, lasts until the child is approximately three years old. There then follows a phallic period from three to six years of age, during which the child becomes involved in a conflicting two-fold attitude toward his parents. That is, the child desires to eliminate the jealously hated, same-sex parent and take his or her place with the opposite-sex parent. Fear both of retaliation and of loss of love keeps the child from acting out these wishes. Finally, at about six, the child enters the latency period, during which time sexual impulses are essentially subdued until puberty re-arouses them.

The oral, anal, and phallic stages make up what is called the pregenital period. These years of early childhood are viewed as the most important for personality development. Much of later maladjustment is seen as the result of an unhealthy "fixation" of infantile modes of sexuality during childhood, resulting from stress or trauma in early development. The adult's character or personality is given shape by the fixations of early childhood. This notion of fixation in early psychosexual development is the core of the psychoanalytic assumption of critical periods in childhood.

Although Freud's theory was derived from psychoanalysis with adults and not from observations of children, it had widespread appeal. As a result, psychologists developed a serious interest in studying the effects of different child-rearing patterns, and early childhood came to be viewed as the crucial time for influencing human development.

Freud had many followers. Some retained his basic tenets but further developed his theory; others attempted to translate his ideas into other conceptual frameworks. Karen Horney, Eric Fromm, Harry Stack Sullivan and Erik Erikson were prominent among those who sought to move psychoanalytic theory away from a concern with biological and instinctual factors and towards a focus on interpersonal factors. Today, Erik Erikson's analysis of stages of child development is probably as well known, and as influential, as Freud's. Erikson holds that early childhood experiences are crucial to adult personality formation. In Childhood and Society, he emphasized the effects of social and cultural factors upon the individual's development at each of the psychogenetic stages. For him, Freud's psychosexual stages become psychosocial stages. (See Table 3.1)

Erikson emphasizes not only the predominant zone of satisfaction (oral, anal, or genital) during each stage of development but also the various "organ modes" upon which social modalities depend. These organ modes represent ways of interacting with the environment in obtaining sexual gratification, whereas social modalities parallel them but represent the interpersonal(social)

TABLE 3.1

Erikson's Theory of Development

	Psychosocial Stage	Zone	Organ Mode	Social Modality	Nuclear Conflict	Strength	Institution
I.	Oral-respiratory-sensory	Oral	1st incorporative (sucking)	To get (to receive & accept what is given)	Trust vs. mistrust	Drive & hope	Religion
Ia.	Oral (con't.)	Oral	2nd incorporative (biting)	To take & to hold on			
II.	Anal-urethral-muscular	Anal	Eliminative/retentive	To let go & to hold on	Autonomy vs. shame or doubt	Self-control & will power	Law & order
III.	Locomotor-genital	Genital	Intrusive Inclusive	To be on the make	Initiative vs. guilt	Direction & purpose	Economic ethos
IV.	Latency	Genital			Industry vs. inferiority	Method & competence	Technological ethos
V.	Puberty-adolescence	Genital			Identity vs. confusion	Devotion & fidelity	Ideology & aristocracy
VI.	Young adulthood	Genital			Intimacy vs. isolation	Affiliation & love	All institutions
VII.	Adulthood	Genital			Generativity vs. stagnation	Production & care	
VIII.	Maturity	Genital			Ego integrity vs. despair	Renunciation & wisdom	

aspect of human culture. Before the genital stage, the different organ modes and social modalities are developing successively and are mastered at each stage until adult (genital) modes and modalities take prominence and the others become auxiliary.

As development proceeds through the various psychosexual stages, the ego is engaged in the various nuclear conflicts which chracterize each stage. These represent particular dilemmas in ways of relating to the world, the resolution of which contributes to an individual's personal identity. The progression is towards a mutuality in relationships. Similarly, at each stage, various ego qualities or strengths develop. Each of these is in turn reflected in the various institutions of a culture.

For example, the second psychosexual stage is designated the anal-urethral-muscular stage. The erogenous zone, which is the focus of sexual tension, is the anal zone. The two conflicting modes of approach in obtaining sexual gratification are retention and elimination. The social modalities which develop at this time have to do with holding on and letting go; mutual regulation between the child and his social environment requires a careful balance of the two organ modes, i.e., healthy toilet training. The nuclear conflict with which the child must struggle is that of autonomy (feelings of goodness) versus shame or doubt. The resolution of this conflict requires self-control or will power, which is represented in a culture as law and order.

Erikson follows Freud's argument that the early human stages reflect the biological development of the sexual instinct in the various erogenous zones and the selective reactivity of the environment (cultural child-rearing patterns) to that development. However, this sequence of significant experiences itself (weaning to intercourse) generally obeys inner laws of development like those which determine embryological development. If the natural rate and sequence of the developing impulses are disturbed by environmental experiences the child's development may become fixated. This fixation may take two forms. The zone of sexual gratification may remain the same while the organ mode progresses to the next stage, or the organ mode may remain the same while the zone of gratification changes. Such maladaptions are the result of unsuccessful child-rearing patterns which do not permit patterns of mutual regulation between child and parent to develop.

In briefly describing the early arguments of Freud and the relatively recent arguments of Erikson, we are trying to epitomize the thrust of a voluminous and influential body of professional and popular psychoanalytic literature. Freud had some trouble gaining scientific respectability. His work was not widely accepted in his native Vienna, except by his own small coterie. His first international recognition, interestingly enough, was in the United States. In 1908, G. Stanley Hall invited Freud and his followers to give a series of presentations at the new Clark University. From that day to this Freud, Freudianism, and psychoanalysis have been more embraced in this country than in any other. If the scientific psychologists were slow and reluctant to take him up, literary psychology -- and soon after, popular psychology -- was not. Psychoanalysis has been relentlessly written about.

The general belief that the early years of human childhood are terribly important, that parent child-rearing practices make a tremendous difference, that trouble in adulthood must be associated with trauma in childhood, all these have been part of American thinking for a long time. It was not until the 1930's that serious attempts were made to conduct experimental tests of psychoanalytic hypotheses. Robert R. Sears, who wrote an important survey of such experimental tests, subsequently initiated a long term effort to develop the psychoanalytic assumptions through studies of children and their parents.

Direct scientific tests of Freudian hypotheses have never been very persuasive or conclusive. In that strict sense of proof which is accepted by many behavioral scientists, Freudian theory remains unproved and, probably, unprovable. During the late 1950's the trend toward animal experience studies -- and then, later, the ethological studies of animal development -- were important scientifically because they seemed, at last, to provide a place for the study of ideas like Freud's in the laboratory under controlled conditions. But it is likely that popular and professional thinking about child development had absorbed well before then the general message of Freudian thinking: that there are critical forming events at early stages in the development of the human personality.

At present, by a process of diffusion not dissimilar to that which has been described for Freud's work, there is a growing trend of belief in the criticalness of the early years for human intellectual development. The source for this is the work of the contemporary Swiss psychologist, Jean Piaget. Piaget has not directly studied intervention in children's intellectual development, nor do his data offer any clear proof of the possibilities of such intervention. Similarly, his work has not defined critical periods, periods during which some kind of intellectual stimulation is absolutely necessary for normal or optimal development. Nevertheless, there is a tendency to see his work as demonstrating both the possibility and the necessity of crucial early childhood intellectual stimulation.

Cognitive Development. Jean Piaget is a developmental psychologist who has at present a major influence on thought and experimentation related to cognitive development. In addition, his ideas have been eagerly studied by various preschool educators (e.g., Weikart, Kamii) in attempts to develop preschool settings which are most appropriate for stimulating the child's development. Here we shall present a very brief outline of Piaget's theory of cognitive development, stressing in particular his conception of intelligence and the manner in which the theory incorporates the notion of optimal periods.

Piaget views intelligence as a form of biological adaptation which results from and is based upon the interaction between the developing organism and the external world. Piaget's fundamental question is "how does the subject come to 'know' objects?" This knowledge and intelligence are inseparable, for the knowledge depends upon both the outside world and the developing inner models of reality, through which the subject intelligently perceives and structures his experience of the external world.

The two functional processes which are present throughout all development are assimilation and accommodation. Assimilation consists of the "integration of external elements into evolving or completed structures of an organism" (1970, pp. 706-707). A thought-structure related in some way to the external object is necessary in order for the object to be assimilated, and the way the object is viewed depends upon the structures to which it is assimilated -- i.e., to the structures the subject already has. But given only assimilation, the organism would never develop. He would always view the world in terms of static structures and would not acquire new content. The process of accommodation is always associated with assimilation. Accommodation is "any modification of an assimilatory scheme or structure by the elements it assimilates" (p. 708). By this process, the structures of the organism gradually change. Cognitive adaptation consists of an equilibrium between assimilation and accommodation. If assimilation is dominant, the child or adult ignores features of reality. Symbolic games and play are primary examples of the dominance of assimilation. On the other hand, when accommodation outweighs assimilation, imitation results. Development proceeds towards better equilibrium between assimilation and accommodation.

The child gradually constructs his world, with assimilation providing continuity and accommodation providing change. The constructions are sequential, with each built upon the preceding one. The child reaches points of equilibrium at various stages in his cognitive development. At these points of equilibrium, different levels of thought and knowledge exist, and they are described by the stages of development outlined by Piaget. These stages must fulfill two conditions: "(a) that they must be defined to guarantee a constant order of succession, and (b) that the definition allow for progressive construction without entailing total preformation" (1970, p. 710). Piaget has described three major stages in development -- the sensorimotor period (birth to 1 1/2 - 2 years); a period of representative intelligence comprised of a subperiod of preoperational thought (2 - 6 years) and a subperiod of concrete operational thought (6 - 12 years); and a period of propositional or formal operational thought (beginning at 11 - 13 years). At each of these stages the individual has characteristic ways of interacting with his environment. The ages given by Piaget are seen as general guides and are not considered fixed. They vary according to the rate of development through the sequential stages.

The rate of development is dependent upon the interactions between the child and his environment. Biological maturation is important, for it opens the way to possible constructions. Through interaction with his environment, the subject actualizes the possibilities opened by biological maturation.

> In considering the problem of duration or rate of succession of the stages, we can readily observe that accelerations or delays in the average chronological age of performance depend on specific environments (e.g., abundance or scarcity of possible activities and spontaneous experiences, educational or cultural environment), but the order of succession will remain constant. (Piaget, 1970, p. 713)

Piaget states that it is possible that teaching can accelerate spontaneous development if it is appropriate to the child's level. If it is not appropriate, however, it will simply not be assimilated by the child. Thus the match between the child's level and the educational materials becomes crucial. But this notion of matching teaching to structure is too specific to provide leads to broad intervention strategies. It expresses the old Herbartian principle that new knowledge builds on old knowledge, and is not in itself a "critical periods" argument. Concerning the broader age changes which constitute cognitive development, Piaget says:

> For a specific subject the speed of transition from one stage to the following one has an optimal rate. That is, the stability and even the fruitfulness of a new organization (or structurization) depends on connections which cannot be instantaneous but cannot be indefinitely postponed either since they would then lose their power of internal combination. (1970, p. 713)

The problem is that Piaget does not write more specifically than the above concerning optimal periods. He does not specify whether the limits of the optimal rate are determined by maturation, experience, or both. And he does not say that optimal rates are the same for all subjects. It must be noted, however, that he also does not say that one stage is more important or "critical" than another. Obviously, early stages are crucial in that the child must build later stages upon them. Unlike the Freudian and neo-Freudian definition of stages noted earlier, according to the Piagetian definition the child cannot go on to the next stage until he has "completed" the previous one. For example, before the child can attain formal operations, he must have had concrete operations. Within the psychoanalytic frameworks described previously, a child could progress to the next stage without having "adequately coped" with the preceding, although fixations established during the preceding would remain throughout life.

Piaget's theory is, on the whole, very much like Freud's theory in its present pattern of influence. It is supported by a great deal of reported observation and data taken from children. And yet the sweep of the theory is larger and more speculative than the conclusions made possible by its "data base". The great game in American psychology right now is to try to understand how much, in what sense, and how exactly Piaget's articulated analysis of the development of human intelligence can be sustained by further studies.

Piaget offers a kind of embryology of mind. The thought-structure of the child digests experience and, in so doing, differentiates, becomes greater and more complicated. There is gradual growth of the thought-structure and then, at key stage-transitions, qualitative change. Some part of all this is related to internal maturational factors and some part to the patterns of the child's experience. Proving or disproving the form of the large movements of thought suggested by Piaget may ultimately be as difficult as the experimental tests of Freud. But Piaget's ideas are now being "tested" and, undoubtedly, there will continue to be tests of the larger assertions in Piaget for some time.

There is a trend of contemporary research that runs in a more empirical course. There has been a considerable growth of animal studies on the effects of special variables in early development and, parallel to the animal studies, a smaller number of studies of similar factors in human development. The animal experiments are much easier to do in a controlled way, but it is always a little awkward trying to decide how much or how little a rat, cat, dog or monkey study means for human development. Studies of humans are always more persuasive, but generally there are such severe constraints in the execution of studies with human infants that one can rarely achieve satisfactorily conclusive findings from such studies. Our "hard data" about the critical periods in development come from a large set of early experience studies with animals and humans.

Animal Studies

Over the last thirty or forty years a literature amounting to thousands of articles has accumulated on topics in early experience and early development in animals. It would be impossible to review this literature completely here but, fortunately, the fruits of all this research for child development programs have been limited to a few general propositions that have conditioned thinking and planning. It is possible to discuss these propositions, and to review selected studies that suggest the nature of the empirical findings that lie behind them. Any movement of a finding, a conclusion, a hypothesis, or an argument from animal findings toward human implications must be speculative. People regularly argue from the animal findings toward human behavior, perhaps because an important part of the meaning of such animal research is precisely the search for human meanings and human connections. When these linkages-by-analogy become intertwined with social and political arguments, it is often difficult for those not familiar with the research literature to separate fact from fiction. For example, a decade ago it was very fashionable to call the circumstances of poor children a form of 'sensory deprivation' or 'understimulation' (Deutsch, 1963), and to connect such circumstances with animal evidence that has definitely shown an association between sensory deprivation and deviant neural, emotional, and cognitive development. Only those familiar with the animal literature would understand that it is a literature of animals being reared in featureless, empty boxes with no visual variety at all, circumstances totally different from those of poor children. Ironically, a few years later, the fashion changed. It became popular to link the circumstances of the children with another kind of animal experiment and to argue that they were the victims of 'overstimulation' (an overwhelming experience pattern) (Gray & Klaus, 1965). This argument, like the preceding one, goes an enormous distance on analogy.

The body of existing animal literature has been established through three successive, and somewhat different, impulses. During the 1930's and the 1940's there began a trend to seek experimental studies of psychoanalytic hypotheses. Attempts were made to bring psychoanalytic ideas into the rat laboratory and, thus, there developed a long series of 'laboratory analogue' studies of fear, anxiety, repression, fixation, conflict, displacement, and 'experimental neurosis'. A few of these studies were early experience studies -- generally, studies in which animals were traumatized in early life and attempts were made to see if they were unusual later. As one might expect, psychoanalytic theory neither gained nor lost much by these studies. This tradition was to evolve into the contemporary analysis of the neural and biochemical substrata of emotional behavior. This is an important line of work, one not without significance to psychoanalysis, but generally not directly connected with the issues under discussion here.

The second wave of work began in the late 1940's and was associated with an important psychobiological treatise by D. O. Hebb, The Organization of Behavior (Hebb, 1949). Hebb argued that the brain is continually active neurophysiologically in complex autonomous rhythmic patterns of neural discharge, and that this activity goes haywire if proper sensory experiences are not available to regulate it. The brain's activity is organized and regulated by patterned sensory experience. Hebb's argument, and a great deal of concomitant research in his McGill laboratories, stimulated a wave of laboratory studies in which all kinds of systematic alterations were made in the sensory environment of the developing animal. This work was to be drawn upon for the justification of child development programs. Hunt's book, Intelligence and Experience, goes over a great deal of the work in detail; the book (Hunt, 1961) is still frequently cited as scientific justification for early childhood programs.

There has been still a third initiator. European 'ethology' is a disciplinary study of behavior quite different from that which has prevailed in the United States. It is a biological specialty. It studies many species. It is a naturalistic, observational tradition. Ethological studies, joined with a current wave of anthropological studies of primates in the wild, have become a major present source of science-based arguments about human behavior and human destiny. On the more conservative side, they have generated significant data about "critical periods" and important evidence relating early social experience to later social, sexual, and maternal behavior. On the more flamboyant side, they have been the source of heterogeneous best-sellers (Ardrey, 1962, 1966; Lorenz, 1966) accounting for human social problems through various hypothesized instincts of aggressiveness, sociality, territoriality, dominance, etc.

We will discuss here only a limited segment of the large and quite interesting literature generated by all this -- that part that has been directly implicated in the planning of child development programs.

Prenatal

As noted earlier, research on the effect of prenatal experience has classically involved the field of embryology. The immediate effects of biological insult on growth and development rather than postnatal behavioral effects has been the primary concern although behavioral effects are generally concomitant. The embryological evidence suggests that there are critical periods in fetal development during which maternal physiological changes can be transmitted to, and exert a permanent influence on, the fetus. Examples of findings from this line of research are that adrenalectomy of pregnant rats produces fetal adrenal hypertrophy (Knobil and Briggs, 1953), and that thalidomide taken during the early stages of human pregnancy results in malformation of the limbs (Lenz, 1962). Numerous other chemical substances, hormones, radiation, infectious agents etc. have been implicated in birth defects (Dagg, 1966; Fraser, 1962).

In addition, these physiological changes in the offspring have been found to have numerous behavioral effects. For example, fetal irradiation of rats has been associated with learning deficits (Levinson, 1952) and increased general activity and emotionality (Furchtgott, 1963). Prenatal anoxia of rats and kittens has significant effects on learning ability (Meier et al., 1960). In general, the effects of such treatments vary with the timing of intervention during gestation and the dosage involved.

However, aside from physiological changes per se, it is important to determine the behavioral effects of prenatal experiences in general on postnatal life. Here the concern is with the effects of prenatal manipulation of behavioral and psychological variables rather than of explicit biochemical interventions. General stress has been the main independent variable used in such studies. Thompson (1957) made the first attempt to study the effects of maternal stress or "anxiety" on the emotional behavior of that offspring. Before pregnancy he trained rats to associate a buzzer with electric shock; during pregnancy they were exposed only to the "anxiety-producing" buzzer. At parturition, some of the offspring were fostered to non-anxious mother rats. The findings clearly showed that anxiety during pregnancy resulted in offspring with increased emotionality of fearfulness. Similar results have been found with other forms of stress -- audiogenic seizures (Thompson and Sontag, 1956), crowding (Keeley, 1962), and handling (Ader and Conklin, 1963) -- although the effects on emotionality have not always been in the same direction.

In addition, several studies have demonstrated that the effects of prenatal stimulation can reach across generations to affect descendants. Denenberg (1972) reports two studies (Denenberg and Whimbey, 1963; Denenberg and Rosenberg, 1967) which show that rat mothers who were handled in infancy have offspring whose birth weight and behavior are affected. Ottinger and Simmons (1964) point out that both prenatal and genetic factors are involved.

Postnatal

Three kinds of experiments have been performed in order to investigate critical periods and to study the effects of early (postnatal) experience in different species of animals. Experiments have deprived animals of certain "normal" environmental experiences; added experiences thought to have a positive influence, i.e., enriched the environment; and stressed animals by the addition of experiences thought to have a negative influence on development. Many of the deprivation experiments have created extreme environmental conditions (ones not occurring naturally) before they have demonstrated any clear and lasting effects. In contrast, many of the enrichment experiments provided little that a feral animal would not encounter, although the "enriched" environments were unusual for the typical laboratory specimen.

For the most part the stress experiments are limited to the original infant stress (handling and electric shock, cooling) experiments with rats. We shall discuss each of these major types of experiments in turn.

Deprivation. Prior to the experimental studies of the effects of deprivation, ethologists provided evidence supporting postnatal critical periods by their studies of the imprinting phenomenon in precocial birds. Imprinting was first observed by Konrad Lorenz in the 1930's. At the time it was known that newly-hatched geese normally follow their mothers around and become attached to them within the first few hours of life. Lorenz observed that greylag goslings follow the first moving object which they encounter, regardless of whether it is their mother or another member of the same species. Consequently they establish a preference for associating with this first-encountered-and-first-followed object. Lorenz was thus able to "attach" or imprint goslings to himself by being the first moving object that they encountered. These goslings responded by behaving towards Lorenz as they would respond toward their mothers normally. In adulthood, they displayed a distinct preference, social and sexual, for human beings rather than geese.

Lorenz (1935) noted that imprinting occurs only during a definite period, often of short duration, early in the animal's life cycle; that once it occurs, it is irreversible; that it determines future adult behavior such as social and sexual preference, and that it can be generalized from a specific stimulus object to other members of the same species.

Since Lorenz, numerous researchers have demonstrated the imprinting phenomenon with a variety of precocial bird species. Birds have been imprinted to wooden model decoys (Hess, 1964), to rotating disks (Smith, 1960), to stationary geometric objects (Gray, 1960), and to a repetitive tone (Smith & Bird, 1963). Not all of Lorenz's original observations have been supported by these empirical studies. Experiments have disproven the hypotheses that the degree of resemblance to an adult conspecific movement on visual or auditory stimulation alone are the primary factors in imprinting (Moltz, 1968). Most important to the present paper is the increasing doubt that imprinting is confined to a critical period in development. Both Moltz (1968) and Denenberg (1972) have noted that experimenters (Hinde et al., 1956; Jayne, 1956; Waller & Waller, 1963) have been able to change imprinting from one object to another during times other than the critical period previously designated. Irreversibility (specificity and durability of imprinting) has been questioned. Thus, the term 'sensitive period' is often preferred in order to avoid connotations of finality.

Two major researchers of the effects of early social deprivation on later social behavior are Scott and Harlow. J. P. Scott, a biogeneticist turned psychologist, published one of the first articles directly concerned with the assertion that critical periods exist for both humans and animals. In his 1962 Science article, "Critical Periods in Behavioral Development", Scott hypothesized that there are three major postnatal critical period phenomena: the formation of basic social relationships, early stimulation, and early learning (experience affecting parameters such as sensory, motor, and neurological development). However, at the Jackson Laboratory in Maine, he has focused the majority of his research on the formation of basic social relationships in dogs.

Scott (Scott and Fuller, 1965) has identified four developmental periods for dogs: 1) a neonatal period, in which there is a growth of behavior patterns present at birth; 2) a transitional period, in which new behavior patterns begin to come forward; 3) a period of primary socialization, in which social interactions develop between young and young, and between young and mother; and 4) a juvenile period, which lasts from weaning until sexual maturity. The primary socialization period is essentially equivalent to the period of imprinting in birds. It is the brief period in development when an animal normally forms an attachment to other members of the same species. It is also the period during which the animal has the capacity to form attachments to other species, such as man. Experiences during this period determine consequent ability to form social relationships.

Experiments in which puppies were socially isolated during the primary socialization period indicate that isolated puppies develop into adult dogs with long-lasting patterns of maladaptive behavior, including inappropriate responses to pain- and fear-inducing stimuli (Melzack and Scott, 1957), general inhibition of the development of agonistic behavior (Scott and Fuller, 1965), and lack of responsiveness to social stimuli (Melzack and Thompson, 1956). For example, researchers in Scott's laboratory have shown that Scottish terriers raised in restricted cages rather than as pets showed heightened emotionality (Thompson and Heron, 1954a), deficiencies in problem-solving (Thompson and Hern, 1954b), diminished social capacities (Melzack and Thompson, 1956), and insensitivity to pain (Melzack and Scott, 1957).

For the past ten years, Harlow et al. (1971) have conducted a series of long term tests on the effects of various kinds of deprived, normal, and enriched social environments on the personal-social and intellectual development of monkeys. In their research, they differentiated between social and sensory deprivation and between total and partial social deprivation. Total social isolation was defined as the complete absence of social contact from birth until a predetermined time (Harlow et al., 1964). Partial social isolation generally meant a lack of physical interaction but availability of opportunities to see and hear other species members (Harlow and Harlow, 1962). Special partial isolation included peer rearing with maternal deprivation, maternal rearing with peer deprivation, and surrogate mothers with various peer combinations (Harlow et al., 1971). An attempt was made not to deprive any of the monkeys sensorily. General research findings indicate devastating effects of total early social deprivation upon the personal-social abilities of the monkeys. Within definable limits there are critical periods for these effects between the third and sixth months of life. Harlow prefers to call this a sensitive period, however.

The effects of protracted total social isolation cut across all facets of social behavior, and increase in severity with the length of deprivation. All five posited affectional systems -- the infant-infant, the heterosexual, the infant-mother, the paternal, and the maternal (Harlow et al., 1963) -- are adversely affected. These effects include:

1) socially deprived monkeys make no attempt to seek social contact or normal play (Harlow et al., 1971);

2) socially deprived male monkeys may attempt sexual contact at maturity but these attempts are futile (Harlow and Harlow, 1965);

3) socially deprived monkeys are terrified of both age mates and younger monkeys while at the same time they become hyperaggressive at maturity (Cross and Harlow, 1965);

4) socially deprived female monkeys are difficult to breed, even with experienced males (Harlow, 1965);

5) socially deprived female monkeys abuse their children, sometimes to the point of death (Harlow et al., 1963).

However, "the overall data on discrimination, learning set, short and long delays, and oddity learning set performance of monkeys provide strong presumptive evidence that learning or intellectual capability is neither enhanced by rearing in a socially enriched environment nor damaged by rearing in a drastically deprived environment" (Harlow et al., 1971, pp. 141-142). Therefore, Harlow concludes that the effects of early social deprivation are devastating in terms of socio-emotional variables, but non-existent or slight when measuring intellectual variables

Enrichment. The early enrichment research is not as vast as that on deprivation. Much of the original research in this area was inspired by Hebb's (1949) belief that different environmental experiences before the central nervous system has completely formed would result in differences in neural growth and organization. Consequently, perceptual and cognitive (problem-solving) abilities were studied by comparing the performances of animals, usually rodents, raised in normal laboratory environments with those raised in enriched or free environments. These enriched environments gave more space and toys which might provide perceptual-motor stimulation. For the most part, only short term or immediate effects of enriched rearing conditions on intellectual ability were examined. However, it is clear that such enriched early experiences do enhance immediate development even though the permanency of this enhancement has not been as well researched.

Hebb's work was followed up by numerous investigations based on his original research paradigm of cage-reared versus home-reared rodents and the hypothesis that early perceptual experience was crucial to adult problem-solving ability. Hymovitch (1952), Forgays and Forgays (1952), and Bingham and Griffiths (1952) all extended Hebb's design to include more subjects, more finely differentiated rearing conditions, and more complex learning tasks. Like Hebb, they found rats raised in enriched or free environments to be generally superior problem solvers when compared with rats raised in restrictive cages.

This line of rodent research still continues. For example, Denenberg et al. (1968) raised rats either in regular cages or in an enriched free environment until weaning, when half of each group was switched to the opposite environment. Both pre- and post-weaning enriched experiences were found independently to improve problem-solving performances in adulthood.

Thus, the researchers concluded that permanent brain changes had taken place as the result of enriched experiences prior to maturity.

However, the Hebbian research tradition has recently been criticized on methodological grounds. Gluck and Harlow (1971) have reviewed the animal literature on the effects of both deprived and enriched rearing conditions on later learning. They assert that there is no way to separate out the learning differences which may result from raising in an enriched or a deprived environment per se, from those which may be related to differential perceptual experience obtained from the early environment, or from those which may be the result of emotional or temperamental differences produced by the early environment. They conclude that "there can be no doubt that the primary effect of early deprivation is the alteration of emotional and temperamental variables, and if these cannot be ruled out, the effects of early deprivation cannot be determined." (p. 116)

Other researchers have concerned themselves specifically with the anatomical and biochemical effects on the central nervous system rather than the behavioral outcomes only. Krech, Rosenzweig and colleagues (Bennett et al., 1964; Rosenzweig et al., 1968) have shown using rats that: 1) brain cholinesterase activity correlates positively with genetically based maze ability; 2) rearing in an enriched environment results in significant increases in brain acetylcholinesterese activity in both the cortex and the rest of the brain; 3) it also results in increased brain weight, especially in specific cortical areas; 4) such effects can be obtained by manipulating adult as well as young animals; and 5) deprived or restricted rearing results in the opposite. These findings do not tell us, however, which changes in brain physiology and biochemistry have specific behavioral consequences. Therefore, we do not know which dimension is critical to improved intellectual functioning. It should also be noted that contrary to early experience hypotheses, the adult rodent brain appears to be as plastic as the young brain.

Infant stress or stimulation. Closely related to these enrichment studies are those concerned with infant stimulation. Like the earlier enrichment studies, the vast majority of stimulation studies have been done with rodents. However, they differ in their original intent and in length of treatment. In the 1950's, researchers like Weininger (1953) and Levine et al. (1956) noted that the enrichment studies inspired by Hebb (1949) had emphasized early perceptual experience and often did not deal with truly infantile experiences (pre-weaning). Using Freud as a theoretical basis, they hypothesized that: 1) handling or "gentling" for short periods of time daily would positively affect adult behavior; and 2) stresses such as daily administration of electric shock would result in traumatized adult animals. Treatment prior to weaning was expected to be critical to adult status. Therefore, they were surprised to discover that seemingly minor treatments such as handling had long lasting and powerful effects on adult biology and behavior. And that the effects of electric shock where positive could not be differentiated from those of handling. Thus, Weininger (1956) found that handled rats (vs. nonhandled rats) showed decreased emotionality, increased exploratory activities, and smaller enlargement of adrenals in response to adult stress. Levine (1956) found electric shock to have the same positive effects.

Numerous researchers have continued this line of research. Denenberg (1968, 1972) recently reviewed studies utilizing handling or electric shock techniques as well as other forms of stress (cooling, viral injections). In addition, he summarized the evidence relevant to defining the critical period for infant stimulation hypothesized by Scott (1962). He concluded that shock or handling prior to weaning generally results in:

1) significantly superior avoidance learning in adulthood (Denenberg, 1962);

2) greater emotional stability as defined by less defecating, more freezing, and a lower activity level in novel situations (Levine, 1956; Levine et al., 1956);

3) more rapid maturation of several biological processes such as precocious sexual development and greater physical growth (Morton et al., 1963);

4) more curiosity and exploratory behavior in novel situations (DeNelsky and Denenberg, 1967);

5) handling, like electric shock, is stressful since both result in increased secretion of corticosterone, a hormone normally released in response to novel or noxious stimuli (Denenberg et al., 1967);

6) the first five days after birth (pre-weaning) constitute a sensitive rather than a critical period for the effects of early stimulation on adult rodent status (Denenberg, 1968).

Levine and Mullins (1968) have reviewed the same literature specifically in reference to the later effects of manipulating various hormone systems -- adrenal, thyroid, and gonadal -- in infancy. They concluded that:

1) Early stimulation can permanently affect the adrenal system so that the adult animal is more appropriately responsive to the demands of the environment. The changes in adrenal steroid level apparently affect the development of the CNS mechanisms which control physiological functions in the adult (Levine, 1965).

2) Early gonadal hormone treatments (removal injections) can result in permanent changes in sexual development and adult behaviors, as the result of alterations in patterns or amounts of hormone secretion (Harris and Levine, 1965).

3) Administration of thyroid hormone to rats permanently suppresses thyroid function (Bakke and Lawrence, 1965).

4) In general hormones have different actions at different stages of development, and the first five postnatal days appear to be particularily important though not necessarily critical (Levine and Mullins, 1968).

Summary

The above researcher-reviewers all support the notion that some form of "sensitive" periods exists in animals. However, the evidence for this is clear only for socio emotional and physiological development. This is not true for intellectual development; here the evidence does not support the sensitive period hypothesis in early development. Even for socio emotional development, precise time periods are difficult to identify (if not impossible), and may vary within members of a species although ranges can be determined with some accuracy. Similarly, the precise amount of stimulation necessary to produce normal effects is not easily determined, and often effects have only been found by the use of extremes in treatment and systematic neglect. This has caused Harlow et al. to conclude:

> There now exists a wealth of intellectually poverty-stricken literature which shows that any knowledgeable experimenter who wishes to demonstrate that mammals raised in enriched environments are intellectually superior to those raised in deprived environments can achieve this goal. By conforming to simple fundamental laws of human stupidity this is easily achieved by some investigators using simple experimental designs and by others using experimental designs that they conceive to be recondite (Lessac and Solomon, 1969). The cheerless thought is that the experiments were created by human beings themselves reared in enriched environments, proving only that enriched environments alone are not adequate to facilitate thinking. (Harlow et al., 1971, p. 146)

Human Studies

One of the reasons that animal data have played so prominent a part in discussions of optimizing child development is, of course, the extreme difficulty we have in obtaining reasonably definitive data from humans. Deliberate manipulations of the child's environment are possible only to a limited extent. "Natural" experiments -- situations in which children are thrown into an odd early environment -- are always confounded experiments. Orphanage children are not average children, nor is an orphanage a clearly understood treatment condition.

Nevertheless, there are human early experience data, and these data are always much discussed for their possible theoretical or practical implications. This section reviews, at first, three kinds of studies with humans corresponding to the three kinds of animal studies -- studies of deprivation, enrichment, and early stress. Some analyses of child development have offered a loose kind of critical period thesis. They offer arguments that selected experiences have different force on the child over one age range but not others . . . . Such arguments, in fact, fall somewhere midway between a 'stage' claim and a 'critical period' claim.

We treat here, finally, the argument drawn from the intelligence-testing area -- essentially, the confrontation between Bloom (1964), who has argued that there is a critical early period for the development of human intelligence, versus Jensen (1969) who has argued that intelligence is largely inherited.

Deprivation

Of the three bodies of early experience literature -- deprivation, enrichment, and stimulation (stress) -- the deprivation literature is the largest and best known. Those concerned with human development have been particularly interested in cross-species analyses drawn from experiments of perceptual and social deprivation. In part this has been the result of differing ideas about what variables constitute a deprivation and subsequently affect the animal's development. There is, more or less, a running debate as to whether or not the proposed negative effects of institutionalization of human infants, for example, are the result of the lack of normal social feedback and contact or the lack of perceptual-motor stimulation. Of course, the two are inextricably related in normal development since much of the infant's perceptual-motor stimulation is the result of interpersonal contacts. Similarly, the infant's ability to perceive the world correctly influences his ability to interpret it and to function normally.

Bronfenbrenner (1968) undertook the enormous task of reviewing the early deprivation studies of mammals, and providing a cross-species analysis that is useful in understanding the plausibility of generalizing from animal data to man. In his review "Early Deprivation in Mammals: A Cross-Species Analysis", Bronfenbrenner proposed a number of hypotheses concerning the effects of deprivation as one ascends the phylogenetic scale.

First, Bronfenbrenner defines deprivation as a "situation in which the organism has been prevented over an extended period of time in its early life from experiencing conditions and activities normally encountered during this time" (p. 628). There are two basic kinds of deprivation: 1) drive deprivation, which consists of preventing the organism from obtaining normal gratification of basic drives such as hunger and thirst or secondary drives acquired through learning; and 2) stimulus deprivation, which consists of preventing the organism from encountering stimuli normally experienced early in life, such as contact with the mother.

Second, Bronfenbrenner reviews early deprivation studies of rodents, cats, dogs, monkeys, and humans, using them to develop and support a series of cross-species hypotheses about the effects of early deprivation. The twenty hypotheses developed which he judges to be applicable to man are on the following pages (Table 3.2).

TABLE 3.2

Hypotheses about Early Experience Drawn
from Cross-Species Analysis of Data (Bronfenbrenner, 1968)

(1) Early drive deprivation leads to an increased drive level later in life.

(2) Intensity of effect is dependent on the developmental stage of the organism, the degree of deprivation, and the strength of the drive at deprivation.

(3) The resultant increased drive level has variable effects depending on the developmental stage of a given behavior pattern at the time of deprivation. If deprivation occurs before the behavior pattern is developed, it disrupts further development of the pattern and impairs its expression and efficiency in later life. If deprivation occurs after a behavior pattern is developed, then the heightened drive level enhances its frequency and efficiency.

(4) Early drive deprivation may also impair the development of particular behavior patterns by cutting the animal off from exposure to the stimulation required for their acquisition.

(5) The impact of early drive deprivation is maximized when the organism is more susceptible to effects from later deprivation.

(6) Early drive dprivation influences organisms so that they are more susceptible to training when again placed in a deprived state.

(7) As one moves up the phylogenetic scale, more primitive drives (i.e., the oral) are not as predominant, and tactual and body contact become more important.

(8) Reinforcement from body contact and associated primary drives in mammals leads to a strong secondary drive for contact with the mother, a dependency drive. Frustration of this dependency drive has a greater impact as one moves up the phylogenetic scale.

(9) The strength of the dependency drive increases with the length of time spent with the mother as a source of primary drive reduction.

(10) A frustrated dependency drive increases the general drive level and produces a syndrome of emotional disturbance involving: increased anxiety; inhibition of exploratory and manipulative activities, repetitive, self-stimulating movements; and fear, rejection of, and agressiveness toward social objects.

TABLE 3.2
(Continued)

(11) Frustration of the need for perceptual-motor stimulation through stimulus restriction in infancy leads to hyperactivity and self-stimulation in later life.

(12) Stimulus deprivation of a particular modality leads to impaired functioning of that modality later.

(13) Early infancy is a period of relative immunity from negative effects of stimulus restriction and frustration of the dependency drive.

(14) The initial stage of relative immunity lasts longer the higher the species on the phylogenetic scale.

(15) If stimulus deprivation is maintained from early infancy into middle and late infancy, serious deficits and disturbances will result:
--an initial reaction of intense anxiety, withdrawal, and self-stimulation;
--a subsequent shift to diffuse hyperactivity and undifferentiated reactivity;
--impaired cognitive functioning as revealed in short attention spans, retardation in learning ability, and a reduced capacity for differentiated emotional responses, both positive and negative;
--impaired capacity for forming attachments and impaired social, heterosexual, and maternal behavior.

(16) Stimulus deprivation in middle infancy (the period of strongest attachment) leads to effects of both stimulus restriction and frustration of the dependency drive:
--intensification and prolongation of initial anxiety, withdrawal, and self-stimulation;
--inhibition of exploratory and manipulative activities;
--reduced level of social-emotional differentiation;
--a potential for recovery greater than if deprived from early infancy on.

(17) Stimulus restriction in late infancy has effects similar to the above, but not so extreme, and there is greater possibility of recovery.

(18) Stimulus deprivation in higher mammals while in the company of the mother increases the dependency drive and inhibits exploratory and social activity.

(19) Vulnerability to the effects of early deprivation increases as one ascends the phylogenetic scale.

(20) Susceptibility to recovery increases as one ascends the phylogenetic scale.

From the available data, Bronfenbrenner concludes that hypotheses 1, 2, 3, 8, 9, 10, 12 and 13-18 have been confirmed; hypotheses 4-7 and 11 have been directly supported; and hypotheses 19 and 20 are inconclusive. Also, he notes that although immediate disturbances and deficits resulting from deprivation appear to increase as one ascends the phylogenetic scale, the ability to recover from early deprivation by later normal experiences or by therapeutic experiences also appears to increase as one ascends the phylogenetic scale. Thus, man appears to be the most influenceable of the mamals.

Examples of both animal and human deprivation studies are provided in Table 3.3, which surveys some of the early experience and critical period studies.

An important body of literature on human deprivation during infancy--the studies of institutionalization, maternal deprivation, and maternal separation--grew out of the Freudian concern for mother-infant interaction and its consequences for adult adjustment, as well as the early experience studies of animals. There have been several excellent reviews of this literature, beginning with John Bowlby's work for the World Health Organization, *Maternal Care and Maternal Health*. The various reviewers approach and interpret the same literature in somewhat different ways but the conclusions are fairly consistent when one looks at the effects on the child rather than the explanations given for the effect. Casler (1968) and Bowlby (1952) agree on the effects of institutionalization, but Casler maintains that many of these effects are the result of perceptual deprivation while Bowlby maintains that the disruption of the mother-infant relationship is the primary cause.

Yarrow (1964) distinguishes among the various types of parental separation studies. *Maternal deprivation* is used to refer to separation from the parents at birth and institutionalization such that the child has no continuous or single mother or mother figure. *Maternal separation* is used to refer to a break in the mother-child relationship for varying amounts of time, sometimes with reunion and sometimes not. Spitz' (1945) highly influential and initiating work was concerned with maternal separation; but as the theoretical emphasis shifted from a concern with mental health based on Freud's theory to a concern with the effects on perceptual-cognitive abilities, more attention was paid to institutionalization *per se* rather than to mother loss.

Spitz' (1945) early work on hospitalization described children raised in two institutions and in homes of similar cultures. Children from homes and an institutional nursery showed normal development while children from the foundling home exhibited a marked and permanent drop in developmental quotient (Spitz, 1946). The main differences between the nursery and the foundling home were the absence of mother after the fourth month in the latter and a poorer physical environment. Spitz noted both the perceptual-motor deprivation and mother absence, but developed the hypothesis that the lack of mother-child interaction is the primary causative factor in retardation. This hypothesis was consistent with Ribble's (1944) assertion that lack of mothering results in marasmus or physical debilitation. His later work (Spitz and Wolf, 1946) on anaclitic depression focused on

TABLE 3.3

Critical Periods and Early Experience Data

Type of Experiment: Stress

Study	Species	Type of Experiment	Results	Domain of Effect
Morton et al. (1963)	rat	handling	earlier sexual development	social-sexual
Levine et al. (1967)	rat	handling	more exploratory behavior less emotional at behavioral and physiological level reduced steroid response to exposure to novel stimuli	cognitive emotional physiological
Solkoff et al. (1969)	humans	handling of low birth weight infants	more active gained initial birth weights faster	perceptual-motor physiological
Levine et al. (1956)	rat	handling/shock	less emotional (less defecation)	emotional
Levine and Lewis (1959)	rat	cold stress	earlier maturation of adrenal ascorbic acid depletion response	physiological
Schaefer (1963)	rat	handling	less emotional	emotional
Levine (1960)	rat	shock and manipulation (stress)	more exploratory behavior adult patterns of response earlier accelerated maturation of CNS accelerated endocrine system reaction no deviations in behavior or physiology	cognitive physiological

TABLE 3.3 (Continued)

Type of Experiment: Stress (continued)

Study	Species	Type of Experiment	Results	Domain of Effect
Levine and Welzel (1963)	rats	handling	under conditions of shock avoidance, handled learned more quickly different breeds responded differently	cognitive

Type of Experiment: Deprivation

Study	Species	Type of Experiment	Results	Domain of Effect
Guiton (1961)	bird	imprint to model; cardboard box	later ceased filial, aggressive and sexual behavior toward model and box	social-sexual
Hess (1959)	bird	exposure to moving decoy, not species member	imprint	social-sexual
Lorenz (1935)	bird	imprint on human	social and sexual attachment to humans in adulthood	social-sexual
Valverde (1967)	mouse	light vs. dark reared	20% fewer dendritic spines of neurons of visual cortex after dark rearing	physiological
Southwick (1968)	mouse	cross fostering to more aggressive strain of mouse "aunts"	increased aggression	social-sexual

TABLE 3.3 (Continued)

Type of Experiment: Deprivation (continued)

Study	Species	Type of Experiment	Results	Domain of Effect
Denenberg et al. (1969)	mouse	mice fostered to rat aunts	less active lesser corticosterone response to novel stimuli	perceptual-motor physiological
Essman (1968)	mouse	isolation from peers; reared under isolation or with group for 28 days beginning at 21, 23 & 32 days of age	neurochemical differences in cerebellum and limbic system (older brain structures) earlier the isolation, greater the damage	physiological
Schneirla & Rosenblatt (1961)	cat	isolation from mothers	difficulty in making perceptual adjustments to current pattern of the mother	perceptual-motor
Held & Hein (1963), Held (1965)	cat	deprivation of physical movement in visual exploration	inadequate depth perception abnormal visually-guided behavior deficient blink response	perceptual-motor
Riesen & Aarons (1959)	cat	deprivation of differential light from birth	inability to discriminate form althouth able to discriminate large differences in light intensity	perceptual-motor

TABLE 3.3 (Continued)

Type of Experiment: Deprivation

Study	Species	Type of Experiment	Results	Domain of Effect
Melzack & Scott (1957)	dog	isolated and perceptually deprived	perception of and overt response to noxious stimuli disturbed	perceptual-motor
Lindsley (1964)	monkey	isolation and darkness (one hour/day unpatterned light stimulation)	bizarre forms of stimulation behaviors abnormal brain activity in reaction to light	perceptual-motor physiological
Riesen (1947)	chimpanzee	complete darkness	lack of ability to fixate objects impaired blink reflex poor depth perception poor size discrimination physiological change in optic disk	perceptual-motor physiological
Rowland (1964)	monkey	isolation	isolated longer than first 6 months, then never adequate social behavior	social-sexual
Mason & Sponholz (1963)	monkey	total social isolation	absence of social approach interaction and social interaction	social-sexual
Goldfarb (1945)	human	institutionalization from birth to age 3, then foster care	absence of normal inhibition pattern affect hunger superficiality of relationships absence normal tension and anxiety aggressive	emotional cognitive social-sexual

(continued)

TABLE 3.3 (Continued)

Type of Experiment: Deprivation (continued)

Study	Species	Type of Experiment	Results	Domain of Effect
Goldfarb (continued)			dependent hyperactive and distractible general immaturity in adolescence inability to conceptualize	
Dennis (1960)	human	institutionalization; restriction	retarded and abnormal patterns of motor development	perceptual-motor
Ribble (1944)	human	deprivation of continuous contact with mother or substitute caretaker	marasmus	emotional
Lowrey (1940)	human	institutionalization age 1-4	severe personality disturbance centering on inability to give or receive love at age 5	emotional
Rheingold & Bayley (1959)	human	institutionalization first 9 months; multiple vs. single caretaker	all of normal intelligence and socially adjusted at 20 months	cognitive social-sexual

TABLE 3.3 (Continued)

Type of Experiment: Deprivation (continued)

Study	Species	Type of Experiment	Results	Domain of Effect
Skeels & Dye (1939), Skeels (1966)	human	orphanage vs. mental retardation institution (lower child:adult ratio) from birth to 3 years	orphanage children lost IQ points, mental retardation children gained mental retardation children normal in adulthood 1/3 of orphanage group still institutionalized	cognitive social-sexual
Spitz (1945)	human	institutionalization during first year	dramatic drop in DQ (developmental quotient) during first 6 months of life	cognitive
Pringle & Bossio (1958)	human	institutionalization at various ages	earlier the deprivation, the greater verbal deficits at age 14 no family contact, then greater verbal deficits at age 14	cognitive
Bennett & Rosenzweig (1969)	rats	restricted vs. control with enriched	restricted inferior on visual reversal problems, problem solving	cognitive
Thompson & Heron (1954)	dogs	socially isolated vs. home reared	isolated made significantly more errors on discrimination and discrimination reversal problems	perceptual cognitive
Gluck (1970)	monkeys	isolation vs. peer-reared	isolates slower to respond, required more trials to extinction	cognitive

TABLE 3.3 (Continued)

Type of Experiment: Enrichment

Study	Species	Type of Experiment	Results	Domain of Effect
Henderson (1970)	mouse	cage-reared vs. enriched environment	suppressive environment (standard cage) reduce amount genetic variance in performance by 3/4 reduce phenotypic variability reduce mean performance scores	cognitive
Cooper & Zubeck (1958)	rat	dull and bright strains reared under normal, enriched, restricted	enriched positively affected dull, not bright restricted negatively affected, bright, not dull	cognitive
Forgays & Forgays (1952)	rat	enriched free environment	the greater the enrichment and/or freedom, the better problem-solving ability	cognitive
Forgays & Read (1962)	rat	enriched environment	enrichment maximally beneficial immediately post-weaning, but also beneficial before and after not beneficial after maturity	cognitive
Rosenzweig (1966)	rat	increased environmental complexity	anatomical and chemical changes in brain increased weight increased learning ability	physiological cognitive

TABLE 3.3 (Continued)

Type of Experiment: Enrichment (continued)

Study	Species	Type of Experiment	Results	Domain of Effect
Denenberg et al. (1968)	rat	enriched environment	both pre- and post-weaning enriched environments indepently resulted in permanent improvement in problem-solving	cognitive
Riesen et al. (1959)	cat	early complex visual stimulation followed by months in complete darkness	maintain earlier capacity for difficult form and movement discrimination	perceptual-motor
White (1967)	humans	enrichment via handling, visual stimulation, mobility increase	faster development of visual-motor behavior	perceptual-motor
Hymovitch (1952)	rats	enriched vs. visually-deprived	enriched adapted more quickly but did not surpass deprived on maze	cognitive
Gibson & Walk (1956)	rats	visually enriched vs. normal	visually enriched performed better on discrimination tasks	perceptual

specific nursery children who were separated from the mother between 6 and 11 months of age. These children were grossly disturbed. However, all of Spitz' work has been criticized on methodological grounds by Pinneau (1955).

Following Spitz, numerous investigators compared the development of infants raised in institutions with those raised in homes. The findings are somewhat contradictory and explanations varied. Prominent among these is the work of Goldfarb (1942a, 1945b, 1947) and Dennis et al. (1938, 1957, 1960). Goldfarb, in comparing institution-raised with fostered children, found striking deficits in the institutionalized children in cognitive development, speech, and emotional development. These deficits remained in adolescence and were attributed to the impersonal nature of the earlier environment. Dennis' studies focused on the motor development of children raised in differing (staff-child ratio, physical setting) institutional environments. He found abnormal developmental patterns and motor retardation in children raised in the more restricted institutions. However, the effects of institutionalization on intellectual development appeared to be irreversible. Dennis attributed the earlier retardation to a lack of learning experiences.

Several variables other than the mere fact of separation from a mother figure now are commonly viewed as influential. These variables are the age of separation, the conditions surrounding the separation, the quality of the environment during separation, the length of the separation, and conditions following reunion.

The effects of separation are dependent upon the quality of both the social and physical environments within which the child has been living prior to separation. Presumably, if the child has had few opportunities to form a social bond with an attachment figure or has been living under physical deprivation, the separation experience may not be immediately disturbing. The longer the child is separated, the more likely that he will "forget" his past and become adjusted to his new situation. Thus, reunion with the parents may in itself constitute another separation, especially if the child was quite young when first separated.

Bowlby's (1970) attachment work would suggest that the immediate effects of separation are most apparent for children between the ages of six months and three years, who have just achieved discrimination of their mother or mother figure and are in the process of forming a social bond.

An attachment refers to the affectional tie or bond which one person or animal forms between himself and another; it endures over time and space. In humans, the infant normally becomes attached to his mother or mother figure and this attachment forms the first social bond, one which is thought to be the basis for the formation of all later social bonds and relationships to love objects. The concept of attachment is derived from both an ethological-evolutionary approach to human development, and from a psychoanalytic approach.

In his recent book Attachment (1970), John Bowlby reviews both the theoretical and empirical literature which has led him and others to the conclusion that a critical period for the formation of human attachment (healthy social relationships) exists which is analogous to imprinting. Bowlby feels that there are four distinct phases through which the primary attachment to a mother figure develops:

1. orientation and signals without discrimination (birth to approximately 12 weeks);
2. orientation and signals directed towards one or more discriminated figures (approximately 12 weeks to 6 months);
3. maintenance of proximity to a discriminated figure by means of locomotion as well as signals (6-7 months to approximately 3 years);
4. the formation of a goal-corrected partnership (3 years on).

Both the child's health and social development are viewed as highly dependent upon early attachment experiences. Favorable conditions for attachment involve the sensitivity and continuity of the mother's (attachment figure's) responses to the child and the amount and nature of the interaction between them. Similarly, the child's behaviors such as smiling, laughing, crying, clinging, and following are important. To date, however, there has been little research exploring the minimal conditions under which attachment can develop.

There are several difficulties with the maternal deprivation and separation studies. The majority have only reported short term effects of institutionalization and have not followed the children beyond latency. Studies of foster care are uncommon. It has also been difficult to determine with any accuracy such important variables as the conditions surrounding separation, the quality of the pre-separation environment, etc., since controlled experiments are impossible with human subjects and many of the researchers have biased their observations by prior theoretical orientations.

Now it is agreed that most studies have dealt with children who could be designated "high risks" regardless of their separation experiences; i.e., the child who ends up in an institution soon after birth or early in life is more likely to have experienced an unfavorable prenatal environment, to have come from an unfavorable home or family environment, and to have suffered a variety of prior deprivations in comparison to the "average" child. Similarly, it is likely that the child who remains in an institution for any length of time rather than being adopted or fostered probably has more negative characteristics.

Summaries of the various studies and reviews that are particularly important in this area of deprivation are provided in Table 3.3. In summary, the data available indicate the following:

The immediate effects of separation from the mother or mother figure are more apparent for children between the ages of six months and three years.

Prelatency age children show retardation in their language and motor development as well as in their emotional responses when institutionalized from an early age.

When studied, few long term effects of deprivation (separation) have been found unless the deprivation itself has been long term.

Once human attachments have been formed (past six months of age), the immediate reaction to separation from the attachment figure is active protest followed by withdrawal.

Presumably children later adjust but are nevertheless characterized by many researchers as dependent, hyperactive, affect-hungry, distractible, lacking in normal inhibition patterns and unable to form deep relationships during childhood.

The severity of personality disturbance and the degree of developmental retardation is linked to the degree of environmental (social and physical) deprivation.

For the most part, the data are inconclusive and of little help in answering questions about specific causal links between early experiences and later developmental status.

Enrichment

Until the mid-sixties and the advent of experimental preschools for the disadvantaged, there were few experimental attempts to enrich children's environments other than efforts to remedy the effects of institutionalization. The classic study in this area was done by Skeels and his colleagues in the late 1930's (Skeels, 1966; Skeels and Dye, 1939; Skodak and Skeels, 1945). For this study, 13 orphanage children under 3 years of age and with a mean IQ of 64.3 were transferred to an institution for the mentally retarded and housed with older, brighter and female inmates with whom they had a chance to form 1:1 relationships. At the same time they attended preschool with children of their age. Within 3 years the mean IQ of the group had increased by 27 points. In comparison, a contrast group who had remained in the orphanage because of their higher IQs (M = 87.6) and who had not had the opportunity to form 1:1 relationships with adults or attend preschool lost an average of 26 IQ points over the 3-year period.

Those children in the experimental group who had attained "normal" IQs were transferred to the orphanage or adopted. The majority of the control groups either remained at the orphanage or were placed in institutions for the mentally retarded upon reaching maturity. A follow-up study of the two groups done some 20 years later indicated that while the experimental group had grown into self-supporting adults, 1/3 of the contrast group remained institutionalized. The mean grade level completed by the experimental group was 11.7 as compared to 3.9 for the contrast group. Unfortunately, there was little interest in enrichment studies during or after World War II until Kirk (1958) compared four groups of mildly retarded preschoolers (IQ range 45-80): community experimental preschool, institutional experimental preschool, community contrast, and institution contrast groups. He found that preschool education had favorable effects (10 IQ points) on the development of mentally retarded children, which were maintained in follow-up years. However, the contrast groups caught up upon school entry. This study led to a number of others (Fouracre, Connor, and Goldberg, 1962a, 1962b; Gray and Klaus, 1965; Blatt and Garfunkel, 1969), which in turn led to the recent movement to overcome disadvantage via preschool programming.

A contemporary set of studies concerned with the effects of specific enrichment (perceptual-motor) has been conducted by Burton White using infants in the first year of life at the Tewksbury orphanage in Massachusetts (White and Castle, 1964; White and Held, 1966; White, 1971). This research is particularly significant for the painstaking quality of the research and the unusual precision with which a stimulative experience has been linked to advancement in specific competences of the developing infant. The research focused on perceptual-motor development, the developing ability of the infant to direct his gaze toward objects in the visual field and then to coordinate hands and eyes to grasp for the object in progressively more mature ways. In the first stage of the research, extended observational studies established a series of age levels at which significant landmarks of perceptual-motor coordination appeared. Then, in a second stage, enrichment experiences were introduced into the infant's somewhat barren visual environment, brightly colored toys and mobiles designed to catch the infant's eye and designed to be responsive to his movements. Testing after enrichment showed that the experience had accelerated the appearance of the landmarks in the stimulated infants' development, sometimes by as much as two months.

The studies of Skeels and of Burton White have frequently been cited as evidence of plasticity in human development. Unfortunately, neither is completely conclusive about the possibilities of enrichment of the average child, because both began with subjects living in an institutionalized environment in which the available environmental stimulation seems likely to have been out of the normal range.

The clearest test of the possibility of acceleration through enrichment for children living within the normal range of environments comes through the present set of government-sponsored experimental projects in infant day care and preschools. Presently available evaluation data are today neither clearly favorable nor unfavorable for such efforts. It is clear that there are evaluative instruments that register changes in a positive direction as a result of such programs, but it is not clear how meaningful or useful those changes are for the child's development and socialization. A review of the relevant literature is presented in Part II.

Stress

For obvious ethical reasons, there has been no controlled experimentation with humans paralleling the animal literature on the effects of stress. However, several research efforts have utilized the animal research as a basis for hypothesizing physiological effects of stress and handling on human infants.

Landauer and Whiting (1964) have tested the notion that early stress results in greater physical growth by defining the number of stressful procedures in different societies, such as ear piercing and molding. They correlated height with the presence or absence of such procedures, and, surprisingly, found that stressed infants grew into taller adults. Also, Solkoff et al. (1969), on the basis of the handling research and two earlier human studies, hypothesized that premature (low birth weight) infants might benefit from being handled rather than kept in incubators constantly. The data were not statistically significant but handled infants did appear to be more active, gained initial birth weight more rapidly, and were physically healthier. It was hypothesized that the added stimulus variation and the differences in mother attitude and behavior may have contributed to the results as well as the handling per se.

Summary

It is clear from the animal and human data that not only extremes--such as continued conditions of isolation, deprivation or enrichment--can affect changes, but that seemingly minor alterations such as inflicting a degree of anxiety or stress can also have immediate, if not long term, developmental consequences. The list below summarizes some of the animal and human data on the effects of early experience in five basic domains: cognitive development, perceptual-motor development, physiological development, social-sexual development, and emotional development. The following possible effects of early experience are indicated:

1. Physiological changes in brain weight and chemistry may result and be permanent.

2. Changes in perceptual and cognitive functioning are indicated as a result of these changes in brain physiology.

3. Early experiences with other members of the species, peers, and parents (mothers) affect later social and sexual adjustment.

4. Early perceptual experiences may be crucial in the normal development of sensory systems and may be dependent upon motor experiences in part for input, i.e., the senses may require environmental tuning of an active nature.

5. Early stress experiences seem to affect the development of stress systems, i.e., hormonal and neurological, and therefore affect emotionality.

6. The more severe the deprivation in terms of intensity and length, the more domains seem to be affected.

The Heritability of IQ

At present, the standing alternative to the critical period or early experience approach is the hereditarian approach. Public discussion about government child development programs has dwelt on one group served by such programs, black children; on one evaluative issue for such programs, the possible modification of IQ; and on a restricted set of writings arguing that intelligence may be changeable or unchangeable. If one looks at the legislation and the programs, this body of discussion seems to embody an extreme oversimplification of the issues surrounding child development programs. If one looks at the presently available literature on the measurement of IQ and its development, the studies do not appear to be conclusive either way.

The degree to which any behavior is either inherited or acquired has long been an issue in psychology. The two extreme and opposed views have been (1) all behavior is the result of an individual's genetic make-up (heredity) and development is predetermined, or (2) all behavior is learned and develops as a function of encounters between the individual and his environment. However, the most common belief is that behavior is the product of both heredity and environment (interaction).

According to the "interactionist" approach, the child receives his genetic make-up from his parents at conception. This genetic make-up, genotype, interacts with the environment both pre- and post-natally. How it is expressed, the phenotype, is dependent upon both the genetic make-up and those environmental influences impinging on the organism as it develops. All observable behaviors are phenotypes for which one can only estimate the amount of variance attributable to heredity (genetic variance) and the amount of variance attributable to environment (environmental variance). In relation to individual differences in any given behavior the important question is how much (what percentage) of the variance is attributable to environment, how much to heredity?

In the last decade individual and group differences in intelligence have been topics of much concern and controversy. Intelligence is considered to be an important behavioral characteristic, one which differentiates man from other animals and affects his ability to survive. However, as a concept, intelligence has many different meanings or definitions depending on the person using the word. No one really knows what intelligence in the abstract is, but it is clear that its importance is derived from our ability to measure it and to use this measurement (IQ) to predict other important phenomena, e.g., scholastic achievement.

Therefore, because intelligence is in and of itself a concept that is difficult to define and to grasp--it is something that is believed in rather than that is--we must limit our discussion of intelligence to what is measureable, the IQ or intelligence quotient. The reader must bear in mind however that traditionally "intelligence" and "IQ" have been used exchangeably and confusingly in writings on the subject.

Before discussing the present-day "IQ controversy", it is important to remember that there are no simplistic answers. Few people believe that IQ is determined by either environment or heredity. Instead the question is one of the percentage of variance attributable to each. Also, one can only make statements about the patterns of hereditary and environmental susceptibility displayed by the IQ test, with all its limitations. This leaves somewhat moot the question of the modifiability of intelligence, not IQ, as well as social class and ethnic differences in intelligence.

In the early sixties two books were published which supported the modifiability of intelligence in early childhood, J. McV. Hunt's Intelligence and Experience (1961) and B. Bloom's Stability and Change in Human Characteristics (1964). Hunt noted that there were certain generally held conceptions of the nature of man and development which could be challenged. He listed these beliefs as the following:

1. A belief in fixed intelligence.
2. A belief in predetermined development.
3. A belief in the fixed and static, telephone-switchboard nature of brain function.
4. A belief that experience during the early years, and particularly before the development of speech, is unimportant.
5. A belief that whatever experience does affect later development is a matter of emotional reactions based on the fate of instinctual needs.
6. A belief that learning must be motivated by homeostatic need, by painful stimulation, or by acquired drives based on these.

(Deutsch, Katz, Jensen, 1968, p. 294).

In the course of the book each of these was challenged by reviewing studies which tend to contradict the above or by presenting alternate explanations for available data. Hunt summarized his viewpoint and advocated early childhood education to prevent intellectual deficit.

In view of the conceptual developments and the evidence coming from animals learning to learn, from neuro-psychology, from the programming of electronic computers to solve problems, and from the development of intelligence in children, it would appear that intelligence should be conceived as intellectual capacities based on central processes hierarchically arranged within the intrinsic portions of the cerebrum. These central processes are approximately analogous to the strategies for information processing and action with which electronic computers are programmed. With such a conception of intelligence, the assumptions that intelligence is fixed and that its development is predetermined by the genes are no longer tenable.

In the light of these considerations, it appears that the counsel from experts on child-rearing during the third and much of the fourth decades of the twentieth century to let children be while they grow and to avoid excessive stimulation was highly unfortunate. It was suggested in the text above that perhaps the negative correlations found between intelligence test scores for the first two years and the late adolescent level of intelligence may possibly be attributable to such counsel, inasmuch as it would be those educated people at the higher levels of tested intelligence who read and can act in terms of what they read who would have been most likely to follow this advice. The problem for the management of child development is to find out how to govern the encounters that children have with their environments to foster both an optimally rapid rate of intellectual development and a satisfying life.

Further in the light of these theoretical considerations and the evidence concerning the effects of early experience on adult problem-solving in animals, it is no longer unreasonable to consider that it might be feasible to discover ways to govern the encounters that children have with their environments, especially during the early years of their development, to achieve a substantially faster rate of intellectual development and a substantially higher adult level of intellectual capacity. Moreover, inasmuch as the optimum rate of intellectual development would mean also self-directing interest and curiosity and genuine pleasure in intellectual activity, promoting intellectual development properly need imply nothing like the grim urgency which has been associated with "pushing" children. Furthermore, these procedures, insofar as they tended to maximize each child's potential for intellectual development, would not decrease individual differences in intellectual capacity as assessed by tests but would increase them. The discovery of the ways to govern the encounters children have with their environments for this purpose would require a great deal of expensive and difficult investigation of the effects of various kinds of early experience on later intellectual capacity. Even after the discovery of the ways, if they can be found, the task of effecting the necessary changes within the culture in child-rearing practices and in educational procedures would be Herculean. Nevertheless, ours is a technological culture of increasing complexity. Its development continually demands an ever larger proportion of the population with intellectual capacity at the higher levels. It calls also for intellectual giants to solve the problems that become increasingly complex. The fact that it is reasonable to hope to find ways of raising the level of intellectual

> capacity in a majority of the population makes it a challenge to do the necessary research. It is one of the major challenges of our times. It is a challenge, moreover, where the chances are fairly good that the behavioral sciences can make a contribution of great social, as well as theoretical, significance. (pp. 362-363)

Bloom's (1964) book further supported this belief in the early malleability of intelligence. In it Bloom reviewed longitudinal studies of human characteristics, including intelligence and achievement, and examined the developmental trends over time. Stable characteristics were identified as being nonreversible, having negatively accelerated growth rates, and being pervasive and durable over time with stabilization occurring at an early age. Bloom was interested in determining the environmental conditions under which development can be altered.

Having reviewed longitudinal data on the development of intelligence, Bloom made the now-famous statement that

> ...both the correlative data and the absolute scale of intelligence development make it clear that intelligence is a developing function and that the stability of measured intelligence increases with age. Both types of data suggest that in terms of intelligence measured at age 17, about 50% of the development takes place between conception and age 4, about 30% between ages 4 and 8, and about 20% between ages 8 and 17. (p. 88)

Bloom went on to say that although the evidence was slight, it was reasonable to assume that changes in the environment during the early years will have a more marked effect on intelligence in adulthood than changes in later years. Therefore, he advocated early social and educational intervention in the case of deprivation.

Similarly his review of the stability of school achievement indicated that early intervention was needed to prevent school failure.

> The absolute scale of vocabulary development and the longitudinal studies of educational achievement indicate that approximately 50% of general achievement at grade 12 (age 18) has been reached by the end of grade 3 (age 9). This suggests the great importance of the first few years of school as well as the preschool period in the developing of learning patterns and general achievement. These are the years in which general learning patterns develop most rapidly, and failure to develop appropriate achievement and learning in these years is likely to lead to continued failure or near failure throughout the remainder of the individual's school career. The implications for more powerful and effective school environments in the primary school grades are obvious. On the other hand, this research raises serious questions about the value of educational remedial measures at later stages. (p. 127)

Thus, Hunt's belief in the modifiability of intelligence and the importance of early childhood education was reinforced by Bloom's work.

As a result of both Hunt's and Bloom's work, disadvantage had come to to mean environmental deprivation, i.e., the lack of necessary experiences that are prerequisites for school learning and which contribute to the development of IQ. This deprivation could be the result of several factors--lack of economic resources, ethnic or racial discrimination, parental lack of concern, inadequate child rearing methods, the "culture of poverty", etc. However, the common goal in relation to removing disadvantage became modifying IQ and promoting scholastic achievement, during early childhood. The common strategy became "compensatory" educational programs. Much time, money, effort, and hope went into this educational solution for disadvantage. (See the Part II reviews.)

However, the solution to disadvantage did not prove to be so simple. The failure of compensatory educational programs to raise IQ and scholastic achievement scores immediately and permanently led to a disbelief or questioning of the hypothesis of the early modifiability of IQ promoted by Hunt and Bloom. The 1969 publication of A. Jensen's "How much can we boost IQ and scholastic achievement" in the Harvard Educational Review explosively reopened the "IQ controversy".

In his well-known article, Jensen questioned the assertion that IQ differences are largely attributable to environmental differences and estimated that 80% of individual variance in IQ within a population is attributable to genetic factors. He arrived at this figure by use of a statistical tool, heritability, which can be used to assess the degree to which individual differences in a trait are accounted for by genetic factors (genotype variance). Heritability is a population statistic which breaks down phenotypic variance into a number of variance components, most simply hereditary and environmental. Jensen applied this statistical tool to numerous kinship studies of intelligence reported in the literature, all of white European and North American populations, in order to arrive at a heritability of .80 for IQ. This meant that only 20% of individual variance in IQ is attributable to environmental differences, either social, biological or physical.

Jensen then analyzed the environmental influences which may contribute to IQ differences. The evidence presented suggests that most of the environmental variance in IQ is the result of differences in prenatal conditions such as low birth weight, Rh incompatibility, multiple pregnancies, etc. Jensen also concluded that environmental factors associated with SES differences are not a major independent source of IQ variance. With regard to racial differences he noted that heritability is a population statistic and that there are no kinship studies of blacks, but went on to say:

> My discussion with a number of geneticists concerning the question of a genetic basis of differences among races in mental abilities have revealed to me a number of rather consistently agreed-upon points which can be summarized in general terms as follows: Any groups which

> have been geographically or socially isolated from one another for many generations are practically certain to differ in their gene pools, and consequently are likely to show differences in any phenotypic characteristics having high heritability. This is practically axiomatic, according to the geneticists with whom I have spoken. Races are said to be "breeding populations," which is to say that matings within the group have a much higher probability than matings outside the group. Races are more technically viewed by geneticists as populations having different distributions of gene frequencies. These genetic differences are manifested in virtually every anatomical, physiological, and biochemical comparison one can make between representative samples of identifiable racial groups (Kuttner, 1967). There is no reason to suppose that the brain should be exempt from this generalization. (Racial differences in the relative frequencies of various blood constituents have probably been the most thoroughly studied so far.)
>
> But what about behavior? If it can be measured and shown to have a genetic component, it would be regarded, from a genetic standpoint, as no different from other human characteristics. There seems to be little question that racial differences in genetically conditioned behavioral characteristics, such as mental abilities, should exist, just as physical differences. The real questions, geneticists tell me, are not whether there are or are not genetic racial differences that affect behavior, because there undoubtedly are. The proper questions to ask, from a scientific standpoint, are: What is the direction of the difference? What is the magnitude of the difference? And what is the significance of the difference--medically, socially, educationally, or from whatever standpoint that may be relevant to the characteristic in question? (p. 80)

On the basis of the above and data which shows that with SES held constant the average black-white population differences in IQ is 11 points in favor of whites, Jensen concluded that this racial difference is largely due to genetic factors.

In conclusion, Jensen examined some of the evidence from compensatory education programs, noted the small IQ gains which generally result, and claimed that most are due to the earlier learning of things which would have been learned later anyhow. Educational attempts to boost IQ have been aimed at cognitive learning (measured by IQ tests) rather than associative learning (measured by tests of specific skills), a misdirected effort since there is some evidence which suggests ethnic and social class differences in patterns of mental abilities. Educational programs should teach specific skills (associative learning) to the disadvantaged since this is the disadvantaged child's strongest point. Cognitive learning approaches should be reserved for children who can readily benefit, predominantly the middle class child.

Given the social and political climate of the late sixties, Jensen's Harvard Educational Review (HER) article was presented by the public media as though it provided scientific proof that blacks are genetically inferior in intelligence. The responses were violent. Thus Jensen found himself caught between cries of racism and calls for academic freedom for scientific inquiry. In the spring of 1969, HER published the rebuttals of six psychologists and a geneticist. In the summer five more rebuttals were published, this time with a focus on the relationship between statistical and theoretical assumptions and consequent "empirical" results and the relationship of research to its human subjects.

The general criticisms presented in these rebuttals can be summarized as follows:

(1) The generalization from within-family IQ differences to the argument that separate racial gene pools are necessarily different is inappropriate (Kagan);

(2) Evidence which shows strong environmental influences on tested IQ, even with twins, is ignored (Kagan, Fehr);

(3) The limited size samples in kinship studies make statistical analyses and conclusions questionable (Crow);

(4) There is no reason to assume that the heritability of IQ is as high for all racial pools as it is for white European and North American (Hunt);

(5) The conception of intelligence as IQ does not consider the importance of recent work in the area of cognitive development by Piaget (Elkind);

(6) The division of intelligence into associative learning and cognitive learning oversimplifies the problems involved (Cronbach);

(7) In general, data concerning individual and racial differences in IQ is insufficient to substantiate the hypotheses proposed (Light and Smith);

(8) There are statistical reasons for questioning Jensen's model:

> Three strategies are available for developing a case against Jensen's postulated relation between race and inherited intelligence.
>
> 1. Accept Professor Jensen's model, and his estimates of the model parameters, but show that non-genetic disparities would still account for most or all of the 15 point IQ difference between the races. This explanation does not implicate genetic racial differences and yet is consistent with his estimates of the model parameters.

> 2. Accept Professor Jensen's mathematical model as a satisfactory descriptive construct, but question his parameter estimates as being either unreliable or incorrect.
>
> 3. Reject Professor Jensen's model as inappropriate because of its failure to incorporate relationships which clearly exist among variables in the real world as we know it.
>
> In our analysis, we will adopt each of these strategies, and demonstrate that they all lead to interferences in direct contradiction to Jensen's suggestion that genetic differences are implicated in observed black-white IQ differences. (Light and Smith, p. 2)

None of these rebuttals made as large an impact on the public media as Jensen's original article.

In fact, in August, 1971, The Atlantic Monthly published an article by Richard Herrnstein, "IQ", which explicitly stated support for Jensen's controversial article in its hypothesis of IQ as being primarily genetically determined. Unlike Jensen, however, Herrnstein concluded that on the basis of the present data, nothing can be said about the reason for the difference in IQ found between the black and white populations. Furthermore, after reviewing the history of intelligence testing and sociological evidence relating IQ, school achievement, and success (occupational), Herrnstein asserted that

> ...the main significance of intelligence testing is what it says about a society built around human inequalities. The message is so clear that it can be made in the form of a syllogism:
>
> 1. If differences in mental abilities are inherited, and
> 2. If success requires those abilities, and
> 3. If earnings and prestige depend on success,
> 4. Then social standing (which reflects earnings and prestige) will be based to some extent on inherited differences among people. (pp. 62-63)

Herrnstein feels that a meritocracy is evolving which is based on all inherited traits affecting success, IQ being one of the most important. With increasingly equal social opportunities our society will become more biologically stratified than it now is rather than less:

> ...as the wealth and complexity of human society grow, there will be precipitated out of the mass of humanity a low-capacity (intellectual and otherwise) residue that may be unable to master the common occupation, cannot compete for success and achievement, and are more likely to be born to parents who have similarly failed. (p. 63)

Herrnstein encourages acceptance of individual differences in the face of this inevitable meritocracy and biological stratification.

Concurrently with Herrnstein's *Atlantic Monthly* article, H.J. Eysenck, a British psychologist, published *The IQ Argument*. This book, published in defense of free scientific inquiry and of Jensen's arguments, is meant to be a critical appraisal of the question of racial differences in intelligence. However, it relies heavily on Jensen's 1969 *Harvard Educational Review* article and on A.M. Shuey's *The Testing of Negro Intelligence*. Eysenck presents data from these two works and essentially reaffirms the hypotheses presented in each.

Therefore, Eysenck presents Jensen's key arguments and agrees with both his presentation of data and conclusions drawn from it. He then goes on to attempt to define race and subpopulations of races, e.g., American blacks, and to disuess the nature of intelligence and the measurement of IQ before presenting much of the data and the conclusions from Shuey's book. Shuey's conclusion is quoted by Eysenck:

> The remarkable consistency in test results, whether they pertain to school or pre-school children, to children between ages 6 to 9 or 10 to 12, to children in Grades 1 to 3 or 4 to 7, to high school or college students, to enlisted men or officers in training in the Armed Froces--in World War I, World War II, or the post-Korean period--to veterans of the Armed Forces, to homeless men or transients, to gifted or mentally deficient, to delinquent or criminal; the fact that differences between colored and white are present not only in the rural and urban south, but in the border and northern states; the fact that the colored pre-school, school, and high school pupils living in northern cities tested as far below the southern urban white children as they did below the white in the northern cities; the fact that relatively small average differences were found between the IQ's of northern-born and southern-born Negro children in northern cities; the fact that Negro school children and high school pupils have achieved average IQ's slightly lower in the past twenty years than between 1921 and 1944; the tendency toward greater variability among whites; the tendency for racial hybrids to score higher than those groups described as, or inferred to be, unmixed Negro; the evidence that the mean overlap is between 7 and 13%; the evidence that the tested differences appear to be greater for logical analysis, abstract reasoning, and perceptual-motor tasks than for practical and concrete problems; the evidence that the tested differences may be a little less on verbal than on non-verbal tasks; the indication that the colored elementary or high school pupil has not been adversely affected in his tested performance by the presence of a white examiner; the indication that Negroes may have a greater sense of personal worth than whites, at least at the elementary,

> high school, and college levels; the unproved and probably erroneous assumption that Negroes have been less well motivated on tests than whites; the fact that differences were reported in practically all of the studies in which the cultural environment of the whites appeared to be similar in richness and complexity to that of the Negroes; the fact that in many comparisons, including those in which the colored had appeared to best advantage, Negro subjects have been either more representative of their racial group or more highly selected than the comparable whites; all taken together, inevitably point to the presence of native differences between Negroes and whites as determined by intelligence tests. (As quoted by Eysenck, pp. 107-108)

In the next chapter he defends the position that most likely genetic factors account for black-white differences in IQ and makes it clear that this is an interactionist position, not a purely hereditarian one. He also asserts that SES, personality, and cultural differences cannot account for the racial gap in IQ.

Furthermore, Eysenck concludes by affirming that racial differences in intelligence exist and should be recognized as such, that science has not had the time to make the most of the 20% environmental variance in IQ, and that only free scientific inquiry will permit us to discover individual differences and find the best way to deal with the educational, racial, and moral problems raised.

> The reasons for the present state of affairs can only be guessed at; the facts themselves are not really in dispute. American Negroes score something like 15 points of IQ below white Americans, and even when environmental, educational and socio-economic influences are rendered as equal as possible, this difference shows little sign of diminishing very much. There are good (although not conclusive) reasons for assuming that a considerable portion of this difference is genetic in origin; no precise estimates can be attempted at this point. When environmentalistic hypotheses are tested, they fail to stand up to scrutiny or experiment. If environmental causes are all-important they have certainly not yet been isolated, or shown to be so. Lack of properly conceived research does not enable us at present to make more than guesses at the methods which we might use to introduce "compensatory programs" which would really have measurable effect on Negro (or disadvantaged white) IQ. (pp. 137-138)

All three of these works--Jensen's, Herrnstein's and Eysenck's--are viewed on the one hand as blatantly racist and socially irresponsible or on the other as further scientific support for inherited racial and/or social class differences in intelligence. Most of the data are derived from old studies and little new research is being done. Therefore, there is still neither enough data to prove or to disprove the hypotheses of inherited racial or social class differences in IQ, and of inherited individual differences in patterns of mental abilities associated with racial or social class groups. Many fundamental questions, often used as assumptions on which to build arguments, are left unanswered or debatable. For example, what is intelligence? Some new research is being done and more thoughtful arguments than cries of racism are being published.

The most noteworthy recently published study concerning inherited racial and social class differences in IQ is Scarr-Salapatek's Science (December, 1971) article "Race, Social Class, and IQ". She states that there are two competing hypotheses for predicting the relation among social class, race, and IQ--the environmental disadvantage hypothesis and the genetic difference hypothesis. Each make different predictions about the proportion of genetic and environmental variance within different groups.

The environmental deprivation hypothesis of IQ, social class, and race predicts that

> ...IQ scores within advantaged groups will show larger proportions of genetic variance and smaller proportions of environmental variance than IQ scores for disadvantaged groups. Environmental disadvantage is predicted to reduce the genotype-phenotype correlation in lower class groups and in the black group as a whole. (p. 1286)

Therefore, the mean and heritability of IQ in lower class groups would be lowered by environmental factors while the mean and heritability of IQ in higher social class groups would be raised. Also if the same environmental factors affect IQ development in both racial groups, the environmental deprivation hypothesis predicts a smaller proportion of genetic variance to account for phenotypic IQ difference among blacks than among whites, as whole populations, because there are a larger proportion of disadvantaged children in the black group.

On the other hand the genetic differences hypothesis, as it applies to social class differences within races, assumes that social class differences in IQ are genetic in origin and result from the high heritability of IQ throughout the population, and assortative mating for IQ. Environmental differences between social classes and races are viewed as insignificant in determining total phenotypic IQ variance.

In order to determine which of these two hypotheses could account for social class and racial differences in IQ, Scarr-Salapatek undertook a study of 992 pairs of school-age twins (36% white, 64% black) utilizing both group intelligence (aptitude) test and achievement test data. Many of her findings and conclusions based on the data supported the environmental deprivation hypothesis. Among them are the following:

(1) Genetic factors cannot be seen as strong determinants of aptitude scores in the disadvantaged groups of either race.

(2) Advantaged and disadvantaged children differ primarily in what proportion of variance in aptitude scores can be attributed to environmental sources.

(3) White children with lower IQs are less susceptible to differences between families than are children with higher IQs, even in an advantaged population. There was no evidence of interaction between IQ and environment in the black population.

(4) Those cultural differences between races that affect the relevance of home experience to scholastic aptitudes and achievement may be of primary importance in understanding the remaining racial differences in scores, once environmental deficits have been accounted for.

(5) School-related experiences will be proportionately more important for black children than for white children in the development of scholastic aptitudes. (pp. 1292-1294; numbering added)

Scarr-Salapatek concludes by advocating supportive environments for all children and asserting that this will lead to an increase in mean scores and genetic variance for all groups.

To date most of the articles written about the "IQ controversy" have started with the assumption that IQ (synonomous with measurable intelligence) is related to socioeconomic success. Few have carefully examined the sociological evidence that IQ is the primary ability or characteristic related to success in America. In his 1972 Commentary article, "Does IQ Matter", D. Cohen attempts to do this by examining correlative studies of IQ, achievement, job status, educational level, and economic status. He concludes:

> First, America is not a meritocracy, if by that we mean a society in which income, status, or power are heavily determined by IQ. All the evidence suggests that IQ has only moderate impact on adult success, and that this impact is exerted only through the schools.
>
> Second, America seems on balance not to have become more meritocratic in the course of the twentieth century. All the evidence suggests that the relationship between IQ and income and status has been perfectly stable. While opportunity has opened up for great segments of the population, the criteria for advancement seem to have involved many things in addition to, and other than, IQ.
>
> Third, something we often incorrectly identify with IQ -- namely schooling -- seems to be a much more important determinant of adult success than IQ. If getting through school is a mark of merit, then America is moderately meritocratic. Buth then, in a society in which education is an increasingly universal

> experience, such a conception of merit begins to lose its meaning.
>
> And finally, among all the many factors which lead to a situation in which some people are poor or hold low-status jobs, lower intellectual ability is not a terribly important one. Being stupid is not what is responsible for being poor in America. (p. 59)

Though it is likely that the heredity-environment IQ argument will continue to be debated with some intensity--there have been repeated intense debates about it since the turn of the century--the data available now do not seem to determine a clear decision for the direction of programs in child development. What we now know seems to amount to this.

1. The IQ test score has a significant hereditary component.[8]

2. Differences in IQ among individuals of differing socioeconomic status are likely to reflect hereditary factors.

3. Racial differences in IQ quite conceivably could reflect genetic factors. The possibility cannot be completely discounted. But it is inconceivable that one can use heredity-environment ratios based on white data to make judgments about minority members of society who, through social discrimination, are crowded towards lower socioeconomic status.

4. No scientific data precludes the possibility of an elevation of IQ through environmental manipulation. No scientific data proves the possibility.

5. The possibility that our society is, or is becoming, a "meritocracy" of genetic talent is interesting in an abstract sense. But the notion of "merit", so far, has not been defined. If defined, it would probably turn out to be very complex. The evidence is quite clear that measured IQ scores do not completely define merit either in academic, income, or vocational prestige sense.

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[8] A recent reanalysis of the hereditary-environment IQ issue arrives at a smaller influence of genetic factors than that posited by Jensen. "Most of the evidence suggests that genes account for close to half the variation in test scores. Virtually no American study supports the claim that genes account for 80% of the variance in test scores. Our guess, based on all the disparate sources of evidence discussed in this section, is that the heritability of Stanford-Binet scores in the United States is around 45%. This estimate could easily be off by 10 per cent either way and it might be off by as much as 20 per cent either way." (Jencks, 1972 in press, p. 120)

Chapter 4: Prediction from Child Characteristics to Adult Characteristics

Summary

The state of the art of predicting from childhood characteristics to adult outcome is rudimentary. Where there is substantial scientific and popular belief that childhood events have a significant formative effect on child development, if we omit certain obvious disasters and consider instead the range of variation of the normal family, then we know little about the specific consequences of early events on later life.

Four types of studies on predictive characteristics are reviewed: (1) life history studies, (2) stability of variables over time commonly used in longitudinal studies of childhood, (3) data on important predictor variables in childhood thought to significantly influence adult life, (4) studies which consider the relationship between adult outcome variables and childhood factors.

Life history studies.

Follow-up studies begin with the child and investigate changes as he grows. Follow back studies begin with the adult and attempt to reconstruct earlier life. Both have certain weaknesses and merits. Follow-up provides more useful information but is more expensive, time consuming and subject to the methodological weakness of all natural or correlational studies as well as possible non-random attrition and lack of comparability among studies. Follow-back is cheaper, less time consuming and more common but relies on past records which are often incomplete, biased and unstandardized. It is difficult to establish accurate matched controls, and sampling problems are often serious.

Stability of variables over time.

IQ scores during the first year of life bear little relation to later IQ. The correlation between early and later IQ increases gradually until at age 11, the correlation with IQ at 16 is .92, suggesting relative stability. Frequent incidents of IQ changes of whole groups do occur, and permanent changes in environmental circumstances may produce long term IQ changes.

There appears to be some stability in achievement also. By age nine, about 50 per cent of "general achievement pattern" at age 18 has been developed; the per cent increases to 75 per cent at age 13. However the direction of consistent changes in achievement appears to be related to the child's environment.

We know less about stability of personality characteristics than we do about IQ or achievement. Partly we are hampered by serious problems of measurement validity over time. Aggression, as measured by particular indices, seems more stable for males than for females while dependence/passivity seems more stable for females.

Predictor variables.

Present data suggest a relationship between prematurity and lower IQ score, lower school achievement, deviant behavior and physical defects with possible mediating or interaction effects of social class. There are suggestions of similar effects of anoxia or perinatal stress on IQ, personality and achievement, although findings here are more inconsistent and the relationship seems to depend a great deal on the severity of stress and time of measurement of detrimental consequence. Some evidence indicates that both incidence of birth difficulty and its later negative effects are associated with family characteristics related to socioeconomic status.

Single parent families have been implicated in effects on the child--especially father absence for male children's delinquency, intellectual ability and achievement, psychological and social adjustment. The evidence supporting this belief is methodologically weak. At this time one can conclude only that the impact on boys seems to depend not so much on the physical presence or absence of the father but on family conditions before and after separation, i.e., a complex of interacting variables mediate and condition the impact of father absence.

The longitudinal research on abuse, neglect and undernourishment owing to maternal deprivation is quite limited. There seems to be a relatively high proportion of serious negative outcomes such as brain injury, mental retardation, permanent physical injury and emotional problems.

Though some positive relationship exists between IQ and adjustment, it may be due to a configuration of variables associated with IQ than to IQ per se. It also seems that environmental circumstances can play a major role in the stability or change in IQ.

Earlier standards indicated that mental retardates often adjusted well in the community, found unskilled though marginal employment and generally had faily positive life chances. Recent evidence suggests that conditions for the mildly retarded have become more marginal in terms of income and social class. Yet apart from organically based retardation, most mental retardation is a label applied to individuals below an arbitrary point on the IQ distribution; it is not a pure condition. The ultimate adjustment for a low IQ individual depends on a number of individual and social factors not yet clearly detailed.

Outcome variables.

Juvenile delinquency, school failure, income and occupational success are four outcomes considered.

Just about all known or imaginable adversity and stress factors of early childhood have been implicated in the etiology of delinquency. Repeated attempts to pin down a single large controlling variable--IQ, SES, cultural difference, family pattern--have not been persuasive thus far. This may well be because delinquency is so gross and heterogeneous an outcome variable that it is unreasonable to trace sources back to anything but gross, probalistic interacting inputs.

Although the dropout rate in schools is declining, still a significant number of students do leave before high school graduation. Efforts to predict dropouts have concentrated on establishing relationships with early difficulties in school, or personality or environmental factors. This line of studies cannot yet tell us which of a large number of potential dropouts will actually leave school, nor has it been effective in guiding preventive programs.

Income and occupation outcomes have not been deeply explored here. Instead we merely attempted to draw a better picture of the outcome of early childhood variables by considering these outcomes. Yet the picture remains blurred. A child who first fails in school at grade four and continues to fail intermittently thereafter is likely to drop out. Dropouts are less likely to be in the labor force than high school graduates, and are more likely to be unskilled and lower in social class. Girls drop out of school for different reasons. Other complicating factors enter such as region of birth, race, family stability, family size, father education and income. Recent analyses suggest, however, that income-returns from education for some groups of blacks have improved.

Overall conclusion.

Program decisions based on manipulating powerful single variables that affect large segments of the population of children are not now derivable from the evidence we reviewed. We do not know enough about human development to identify developmental antecedents of particular adult characteristics. Studies of only one variable are not likely to yield predictive relationships. The one generalization emerging again and again is that all variables and their interactions must be considered simultaneously. Arguments have been made for decades that social phenomena (including child development phenomena) must be studied as resultants of fields of dynamically interacting factors. Unfortunately we do not as yet know how to model network causation in any rigorous way. The use of multivariable techniques suffer from powerful limitations.

It does appear very clearly in the case of mental retardation but also in other cases that many problems of children must be viewed from perspectives beyond child development. It is not axiomatic that one helps the child retardate by services directed at him or his family. Instead this problem and others should be attacked through attempts to change the social frame as well as to fix the individual.

Chapter 4: Prediction from Childhood Characteristics to Adult Characteristics

Intuition and common sense argue that the characteristics of a child's early life ought to have a lot to do with the nature of his adult personality. It makes sense to believe that training forms the child. It makes sense that an infant who suffers from severe malnutrition can have impaired mental functioning as an adult, or that a young child beaten by his parents may have a predisposition toward child abuse. In the search for ways to improve the life chances of children, a natural starting point is to collect data on the variables in early childhood that relate to vital outcomes later, vital outcomes such as social dependency or juvenile deliquency.

The psychiatric theories of Sigmund Freud and his followers have provided an evidential underpinning for the intuition that early experiences form later life. Freud's theory has offered a suggestive cause-and-effect texture by suggesting mechanisms through which early stress in life can lead to adult manifestations of anxiety and neuroticism. Most professional belief in the importance of early intervention in children's lives rests on an acceptance of the psychoanalytic theses, or variants of them, among the child care professions.

However, the cause-effect patterns embodied within the psychiatric theories generally do not set up directions for gross intervention programs nor, for that matter, do they set up any but the most general kinds of cautions about parental child-rearing practices. The psychoanalytic formulations are "idiographic" rather than "nomothetic"; they rationalize subtle and idiosyncratic and individual organizations in human development, but they do not prescribe group trends very well. There have been attempts to study age and mode of weaning, or age and mode of toilet-training, as they influence later child development. Those attempts have not revealed any significant general rules. The psychoanalytic formulations have been persuasive in both the professional and the popular culture but we do not know how to write general prescriptions from them.

Program decisions are general decisions, and they can only deal with critical factors or indices that hold for large segments of the population of children. For those reasons, we will be concerned in this chapter with a review of the general predictiveness of events and circumstances of early childhood for outcomes in later life.

Evidence on predictive characteristics comes from "life history" studies. In the first part of this chapter we review the two types of life history studies -- "follow-up" and "follow-back" -- both of which have some abstruse statistical problems and other, more easily understood pitfalls.

Next we consider the stability over time of several variables commonly used in longitudinal studies of children as they grow into adulthood: IQ, school achievement, and certain personality characteristics such as aggression and passivity/dependency.

The third part examines data on some important predictor variables--aspects of childhood which are thought to have a significant influence on adult life. The five variables most often mentioned are birth difficulties, single parent families, child abuse and neglect, IQ, and mental retardation.

We then turn to a consideration of the relationship between childhood factors and adult outcome variables. The major outcomes are effects on juvenile delinquency, school difficulty and dropout, income, and occupational success. Following this section there is a brief conclusion.

Life History Research

There are two major designs of life history studies -- the follow-up design and the follow-back design. Both have certain weaknesses, but usually the follow-up design provides more useful information. The follow-up study begins with the child and investigates changes as the child becomes an adult. The follow-back study begins with the adult and attempts to reconstruct his earlier life by referring to school records, employment histories, court convictions, and other sources. The follow-up study samples the process of development as it occurs, whereas the follow-back study begins with a product of development and attempts to trace its way back to critical, differentiating early events. The follow-up takes years to complete. The follow-back study may be executed quickly; hence, most existing data are follow-back data.

Follow-up studies are either (1) point-to-point prediction studies or (2) longitudinal studies. Point-to-point studies might relate achievement on a reading comprehension test in the seventh grade to achievement on a reading test in the twelfth grade (Traxler, 1950); they might look at the adult status of first-grade dyslexics (Keeney and Keeney, 1968); or they might compare sociometric position at age 10 with sociometric positon at age 13. Longitudinal studies involve more than two points. They take periodic measurements of individuals over a relatively long period of time. Longitudinal follow-up studies are useful for assessing both the stability of traits and the relationships among several traits over time (Block, 1971).

Follow-back studies analyze the childhood records of selected adults. Some examples are (1) Robbins' (1966) investigation of early clinic records of adult alcoholics and non-alcoholics; and (2) Fontana's (1966) and Mednick and McNeil's (1968) studies comparing the childhood records of adult schizophrenics with the childhood records of adults not judged to be schizophrenics. "Retrospective" studies, a subcategory of follow-back studies, rely on memories rather than records. An example is Sears, Maccoby, and Levin's (1957) study of patterns of child rearing.

Design Weaknesses

Follow-up studies. Follow-up studies have several weaknesses. In any study conducted over a period of years children leave the study sample. Random attrition, although discomforting because it reduces the sample size, does not alter the pattern of findings. The serious problem is non-random attrition -- attrition of a group of people who are similar in some way and whose absence from the group does affect results.

Even if research identifies childhood variables which are related to adult outcomes, we cannot be certain that changing the childhood variable will also alter the typical adult outcome. There are two reasons for uncertainty in going from prediction to intervention. First, prediction studies are always correlational, and have the weakness of all correlational studies -- that, at best, they establish coincidence rather than causation. Second, most adult outcomes are probably the result of the interaction of several variables. Even if we knew the full complex of childhood factors that lead to an adult outcome, we would not therefore know the changes that must be made in the complex to change the outcome. In short, even if the data on the stability and change of human characteristics were both "good" and comprehensive, we still might not know the essential interventions to make to alter negative adult outcomes.

A final methodological consideration is illustrated in Table 4.1, which lists some typical predictor and outcome variables of studies relating childhood characteristics to adult characteristics. As the table indicates, a given predictor variable has not been consistently assessed with the same technique. Standardized, widely used instruments are all too few, and the absence of one widely accepted and proved instrument often leads researchers to use their particular favorite, or even to develop a new one. The lack of standardized instruments creates great problems of comparability between studies.

TABLE 4.1

Some Typical Prediction Studies

Predictor Variable	Outcome Variable	Assessment Techniques	Study
IQ			
IQ	Adult adjustment	Chicago Mental Abilities	Havinghurst et al.(1962)
IQ	Adult adjustment	School IQ information	Anderson et al. (1959)
IQ	Adult adjustment	Unspecified intellectual assessment and IQ tests	Terman & Oden (1959)
Achievement			
Low achievement	Delinquent or sociopathic	-Class rank -Staying in school vs. dropping out -Nature of S's post-high school education	Havighurst et al. (1962)
Low achievement	Prognostic significance as a prodromal factor in schizophrenia	Low achievement as determined by general school work retardation or irregular attainments in academic work or as related to attitudinal and behavioral problems	Wittman (1948)
Low achievement	Development of later functional psychoses	Low achievement on school work	Friedlander (1945)

TABLE 4.1 (Continued)

Predictor Variable	Outcome Variable	Assessment Techniques	Study
Emotional problems			
Early antisocial behavior especially depression and unhappiness	Later alcoholism, schizophrenia	Referral to clinic for antisocial behavior, depression; symptomology, police contacts, school retardation	Robbins (1966)
Early obsessional symptoms, i.e. apathy, lack of initiative, obsessive, compulsive traits, general anxiety and phobias	Chronic or released schizophrenia	Focus on neurotic symptoms, conduct disorder learning problems, withdrawal behavior, psychotic manifestations	Gardner (1967)
Easily upset emotional balance	Later functional psychoses	Somewhat arbitrary checklist for attitude traits	Friedlander (1945)
Psychosexual Predictions			
Male--early effeminacy or homosexual behavior	Later effeminate homosexuality	Standardized interview including family history and dynamics, social and sexual experiences, and antisocial behavior	Holeman & Winokur (1965)
Female--early adolescent sexual promiscuity	Later sociopathy and chronic hysteria	No reference	Sullivan (1953)

TABLE 4.1 (Continued)

Predictor Variable	Outcome Variable	Assessment Techniques	Study
Antisocial Behavior			
Antisocial behavior	Adult diagnosis of sociopathic personality	Clinic records regarding symptomology; records from schools, interviews covering such topics as social, familial and academic history, socioeconomic history, job history, physical illness, and history of arrests and imprisonments and attitudes of *S*'s.	Robbins (1966)
Withdrawal Behavior			
Early social withdrawal	Later schizophrenia	Clinical data coded on 100-item schedule covering developmental, personal, social and medical history of *S*'s -Interviews -Chi square tests	Schofield & Balian (1959)
Withdrawal behavior, shyness, apathy	Later schizophrenic outcome	Child guidance clinic records	Frazee, H. E. (1953)
Excessive Dependency			
Excessive dependency (overprotective, infantilizing maternal relationship)	Schizophrenic outcome	Child guidance clinic records	Frazee, H. E. (1953)
Overdependency	Later psychosis especially in lower class setting	Clinic symptomological records	Robbins (1966)

TABLE 4.1 (Continued)

Predictor Variable	Outcome Variable	Assessment Techniques	Study
Overall Status and Functioning in Peer Groups			
Poor peer relations ("disturbing to classmates") in high risk children (children with schizophrenic mothers)	Later psychotic breakdown	Psychophysiological measures, Wechsler intelligence scale for children, the Kent-Rosanoff Word-Association Test, Adjective Check lists, psychiatric interview, interview with parents or guardian, school reports, midwife's report	Mednick & Schulsinger (1967)
Poor peer relations	Predisposition towards adult adjustment difficulty	Guidance clinic (use records, teacher, observers of S in peer group situations, statements of family members, S's own statements about his social adjustment	Roff (1963)
Degree of reference with delinquent peer reference group	Increased chance of later anti-social outcomes and criminality	Guidance clinic case histories Chi-square test	McCord, McCord & Zola (1959)

TABLE 4.2 continued

Predictor Variable	Outcome Variable	Assessment Techniques	Study
FAMILY: SES, Standard of Living			
low SES	Increased chance of withdrawn or aggressive maladjustment & delinquency	Warner's Index of Status characteristics	Havighurst et al. (1962
low SES	Lower chance of being rated outstanding with respect to adjustment, morale, self-rating & reputation, in young adulthood	Clinic information concerning parents' SES	Anderson (1960)
Broken Homes Broken Homes	Greater incidence of delinquent outcomes	Home interview data, teacher reports, psychological tests, Social Service Index Records, delinquency spot maps	Powers & Witmer (1951)

TABLE 4.1 (Continued)

Predictor Variable	Outcome Variable	Assessment Techniques	Study
Social and Emotional Aspects of Homes "Good homes"-- more or less conventional home with respect to marital relationships, material provisions, discipline and kindness "Fair homes"-- combinations of "good" and "bad" characteristics "Poor homes"-- relatively few positive characteristics			
"Fair and "poor" homes in terms of social aspects	Greater incidences of delinquency	Home interview data Teacher reports Psychological tests Social Service Index Records Delinquency Spot Maps	Powers & Witmer (1951)
Home rating "Fair" and "Poor" in terms of emotional aspects i.e. parents' affection and interest	Greater incidences of delinquency		

Follow-back studies. Follow-back studies also have several weaknesses. An obvious limitation is that they must usually go back to different record sources for different adults. But diverse record sources--early medical records, early school records, early welfare records--are usually recorded for different reasons and by different individuals, and often use different standards.

Even if the records are reasonably well matched, findings of significant relationships do not necessarily signal a significant predictive relationship (Albee, et al., 1964; Mednick & Schulsinger, 1969; Robbins, 1966). All adequately designed follow-back studies have two groups of subjects, "experimental" and "control" subjects. The experimental group has a significant characteristic, e.g., truancy, delinquency, or learning difficulties. A control group is selected which does not show the significant characteristic but which is matched to the experimental group on certain other variables. The childhood information on the experimental group is then compared with the childhood information on the control group. Even if the experimental group antecedents are different from those of the control group, this does not necessarily mean that the particular and different childhood variables explain or cause the adult outcome difference. A study by Robbins (1966) is a good example of the pitfalls of the follow-back approach. He found that 75% of all alcoholics had been truants as opposed to 26% of a non-alcoholic control group. This finding suggests that early truancy might predict later alcoholism. But Robbins reports in another study--this time of follow-up design--that only 11% of the truants became alcoholics as compared to 8% of the remaining population. While the difference between 8% and 11% was statistically significant, the predictive power of truancy for alcoholism certainly did not seem to be significant. This contrast between the results of the follow-back and a follow-up study indicate that we cannot move confidently from postdiction to prediction. We can state that it is slightly more likely that a truant will become an adult alcoholic than will a non-truant, but we cannot predict which truants will become alcoholics, because 89% of the truants did not become alcoholics.

The difference in the relationship between alcoholism and truancy depending on which study design is employed may be caused by sampling problems. Sampling problems are somewhat more serious for follow-back than follow-up studies because in the former it is more difficult to know whether or not the sample differs systematically from the population. Kohlberg, LaCrosse and Ricks (1970) give the following example:

> ...Albee et al.(1964) compared schizophrenics hospitalized in the Cleveland area with elementary school control classmates and found them to have been significantly lower in IQ than controls in the elementary school years. However, the study examined only schizophrenics hospitalized in the Cleveland area, i.e., non-mobile S's. The control records of elementary school classes might have included children who later became schizophrenic, as many of these children have moved out of the area. Mobile individuals are known to be of

> higher IQ than non-mobile individuals, so that the IQ differences found by Albee et al. may have been due to low mobility, not to a predisposition to schizophrenia. (pp. 8-9)

Some time ago Freud(1920) saw clearly how those looking back tend to reach neater (and quite different) conclusions than their counterparts attempting to predict a sequence of development:

> So long as we trace development from its final outcome backwards, the chain of events appears continuous, and we feel we have gained an insight which is completely satisfactory or even exhaustive. But if we proceed the reverse way, if we start from the premises inferred from the analysis and try to follow these up to the final result, then we no longer get the impression of an inevitable sequence of events which could not have been otherwise determined. We notice at once that there might have been another result, and that we might have been just as well able to understand and explain the latter...Hence the chain of causation can always be recognized with certainty if we follow the line of analysis (i.e., reconstruction), whereas to predict it...is impossible. (pp. 167-168)

Stability of Variables Over Time

Only for a limited number of variables can we take a childhood measurement and follow along to adulthood. There are a number of longitudinal IQ studies. We can "leap-frog" from Grade 2 to college using achievement-to-achievement correlations. Data concerning stability of personality characteristics are sparse, but some studies have shown long-term stabilities within certain groups of individuals. Several of the most important are IQ, school achievement, and certain personality characteristics.

IQ Scores

Some of the most extensive longitudinal studies have used IQ as the primary variable. Bloom (1964) cites six major longitudinal studies of children testing IQ over periods ranging from 5 to 21 years.[9] Nancy Bayley's (1970) review of tests of mental abilities covers more recent longitudinal work, including Bayley's 36-year follow-up of the subjects in the Berkeley Growth Study.

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[9] The studies are the Harvard Growth Study (Anderson, 1939), the University of Chicago Study (Freeman & Flory, 1937), the California Guidance Study (Honzik et al., 1948), the Berkeley Growth Study (Bayley, 1949, 1966, 1968a, 1968b), the Brush Foundation Study (Ebert & Simmons, 1943), and the Fels Foundation Study (Sontag et al., 1958).

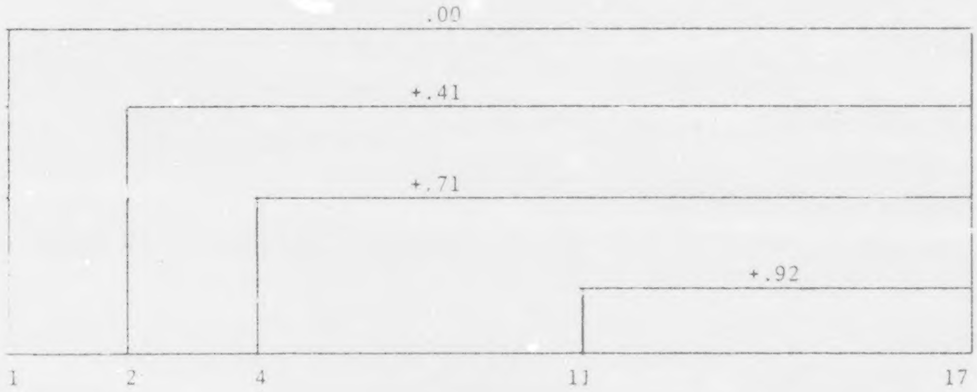
Prior to Age Seventeen

Up to age seventeen the studies show a similar trend. Very early test scores are not highly correlated with adult test scores. There is a period of rapidly increasing correlations between IQ at each age and IQ at 17 until about age 9; the correlations then increase more slowly from ages 9 to 16.[10] The correlations reported in Bayley's longitudinal study are typical. Test scores during the first six months of life have negative correlations with IQ scores at age four. Bayley (1949) reports correlations of -.21 between 1- to 3-month scores and IQ at age four, and of .16 between 4- to 6-month scores and IQ at age four. After six months the scores are positively correlated with IQ at age four (.02 for the 8-month, .27 for the 11 month, .35 for the 14-month, and .49 for the 21-month scores on the tests).

Although there is no correlation between scores at age one and age 17, test scores of 3- and 4-year olds usually correlate more highly with tests at later ages. Some of Bayley's correlations of scores at earlier ages and scores at 17 years are presented in table 4.2.

TABLE 4.2

Prediction from IQ to Later IQ
Beginning at Several Ages



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[10] Bayley's study was carefully reported, and only six tests were used. The various tests and the ages at which they are given are presented below:

Ages	Test
Until 15 months	California First-year Mental Scale
Until age 5	California Preschool Mental Scale
6 - 12, 14, 17	Stanford-Binet
13, 15	Terman-McNemar Test
16, 18, 21, 26	Wechsler-Bellevue
36	WAIS

Bloom's (1964) Summary of other studies correlating IQ scores at one age with scores at another age is reproduced in Table 4.3

Although the IQ's recorded in longitudinal studies appear relatively stable after 4-6 years, there are also many incidents of changes in IQ. These changes will be discussed more thoroughly later.

After age seventeen. It is often said that IQ reaches its highest point in the early 20's and declines with age. However, there is some evidence to the contrary, particularly on those scores reflecting verbal knowledge and information. Freeman and Flory (1937), Owens (1953), and Bayley and Oden (1955) have found increases in test scores with age. Bayley's extension of the Berkeley Growth Study through 36 years indicates that scores increase through age 26, after which the full scale score remains unchanged through age 36. Males show increases on the verbal scale after age 26, while female scores remain unchanged on the verbal scale and drop on the performance scale.

It is important to remember that measures of different abilities make up the total IQ score. The technique known as factor analysis has been used to group highly intercorrelated items which seem to be measuring the same "factor." For example, Thurstone and Thurstone (1943, 1958) have developed tests of "Primary Mental Abilities" which include the factors of Word Fluency, Verbal Comprehension, Space, Number, Associative Memory, Perceptual Speed, and Induction. There are indications that different abilities develop at different rates.

> It appears that one general class of abilities, which may be referred to as verbal facility and knowledge, is not only more stable within individuals throughout growth but also continues to increase in adults to 30 years of age or older. Other abilities appear to be more bound to stages of development, to be less stable over time, and to reach their peak in the 20's. Such fluid abilities include reasoning processes, arithmetic, and verbal reasoning, perhaps attention span or short-term memory, and speed. (Bayley, 1970, p. 1185)

Furthermore, the stability of the factors appears to vary with the sex of the subject, with the test scores of girls being relatively less stable than those of boys after about 16 years (Bayley, 1966).

Bayley (1966) has attempted to identify those components of the early IQ score which best predict later IQ score. Using factor analysis which comprise the California First-Year Mental Scale and the California Preschool Mental Scale she found 12 clusters. The two that correlate with later IQ are verbal vocalizations (items which tap the beginning of verbal communication) and verbal knowledge (spatial). The first predicts later verbal intelligence for girls to age 26 but for boys only to 3 years. (After 3 years the correlations become primarily negative for boys.) The second predicts later IQ for both sexes; it consists of items labeled "action agent" (e.g., "What runs?", "What cries?") and prepositions. On this

TABLE 4.3

Test-Retest Studies of Intelligence of Normal Children

Author and Date	Sample	Test	N	Ages	Correlation
Bradway (1944)	School children	Stanford-Binet ('37)	52	2 and 3 versus 12 and 13	.58
Skodak and Skeels (1949)	Adopted children+	Stanford-Binet ('16)	100	4 1/2 versus 13 1/2	.59
Freeman, Holzinger and Mitchell (1928)	School children	Stanford-Binet ('16)	74	8 versus 12	.68
Skodak and Skeels (1945)	Adopted children+	Stanford-Binet ('16)	139	4 1/2 versus 7 1/2	.72
Hirsch (1930)	School children	Otis	160	7 and 8 versus 12 and 13	.80
Goldin and Rothschild (1942)	School children	Henmon-Nelson	54	10 versus 14	.83
Winons (1949)	School children	Cal. Test of Ment. Maturity	169	13 1/2 versus 17	.68*
Layton (1954)	High School children	Ace Psych. Exam. High Sch. Ed.	2169	14 versus 17	.80**
Townsend (1944)	School children	Kuhlman-Anderson	59	6 versus 9	.65*
Knezevich (1946)	High School students	Henmon-Nelson	113	15 versus 17	.70
Pitner and Stanton (1937)	School children	Thorndike CAVD	59	8 versus 10	.76
Wentworth (1926)	School children	Dearborn	575	6 versus 7	.72*
Stalnaker and Stalnaker (1946)	High School students	SAT Verbal Test	2000	16 versus 17	.94

+ Adopted before 6 months.
* Significant at .05 level.
** Significant at .01 level.

(Continued)

TABLE 4.3 (Continued)

Author and Date	Sample	Test	N	Ages	Corre-lation
Superior					
Burks (1930)	Gifted children	Stanford-Binet ('16)	54	10 versus 16	.81
Katz (1942)	Preschool gifted children	Stanford-Binet ('37)	268	3 versus 5	.62
Traxler (1934)	Lab school children	Otis	85	13 1/2 versus 16 1/2	.68*
Retarded					
Kirk (1958)	Mentally retarded children living at home	Stanford-Binet ('37)	26	4 versus 7	.81
Kirk (1958)	Mentally retarded children in an institution	Stanford-Binet ('37)	12	4 1/2 versus 7	.51

* Significant at .05 level.

(Bloom, 1964, pp. 66-67)

item, the correlations for the boys are higher than those for the girls in 63% of the cases. Bayley concludes that "there appear to be different, sex-linked, and differently timed factors of intelligence which show some stable relations with subsequent intellectual performance" (Bayley, 1966, pp. 129-130).

Changes in IQ scores. It would seem reasonable to assume that changes in adult IQ are related both to external factors (like job and social environment) and to internal factors (such as health). An example of the latter is Birren's (1968) finding that elderly men in optimal health showed little decrease in IQ scores, while men in poor health showed a considerable drop on a retest 5 years later.

Bayley reports that many longitudinal studies have included a few children who show large shifts in IQ. In addition, some groups of people show slowly changing IQ's. Stein and Susser (1970) have reviewed a number of studies which indicate that the test performances of children "from groups at a marked social disadvantage" decline as the children increase in age up to 16 years. Appalachian children in Tennessee (studied cross-sectionally) show a gradual decrease in IQ from age 6 to 16 (Wheeler, 1942). Children of canalboat workers in southern England who had poor attendance records at school also showed a decline, while gypsies who had a slightly more regular school attendance evidenced a less marked drop (Gordon, 1923). Black children in the Southeastern United States were studied by Kennedy, Van de Riet, and White (1963), using a cross-sectional design. In a sample grouped by age, mean IQ decreased from 86 at 5 years of age to 80 at 16 years of age. However, 4 1/2 years later, when 360 of the original 1800 children were retested, the mean IQ scores were not lower than either the initial mean of the sample retested at age 16 or the mean of the entire original sample at age 5 (Kennedy, 1969). Nevertheless, the achievement scores of both the longitudinal and cross-sectional samples showed a decrease in performance at follow-up. Thus, although the data are not extensive, there is evidence that for some groups IQ declines with age.

Stein and Susser (1970) generalizing from studies of mentally retarded subjects, hypothesized that the "downward trend in IQ among children at a marked social disadvantaged probably comes to a halt in the period after puberty" (p.375). Several studies of mentally retarded subjects (Clarke & Clarke, 1957; Stein & Susser, 1969) indicate that those without brain damage showed IQ increases as adults. Although their evidence is sketchy, Stein and Susser conclude that the young adults with IQ increases "represented recovery from retardation of mental development culturally induced during childhood. Their recovery can therefore be seen as delayed maturation..." (P.378). Stein and Susser also cite studies to support their proposition that changes in residential setting are accompanied by changes in IQ, with the direction of change depending upon the type of residential setting. They cite the well-known Skodak and Skeels studies (1945, 1966), where mentally retarded children who were assigned to the care of older retarded women made dramatic IQ gains. Tizard (1964) found that a small institution run in a "family-group" manner raised the IQ scores of 16 "severely subnormal" children transferred from a larger institution. Other studies have indicated a decrease in IQ following the admission of subjects to a "conventional" institution (Kirk, 1958; Stedman and Eichorn, 1964; Sternlicht and Siegel, 1968). Although Stein and Susser acknowledge that IQ gains achieved through programs of short duration are not sustained, they emphasize that enduring gains exist when children are moved completely from one social context to another. For example, Lee (1951) found that black children from the South entering a Philadelphia school system had lower IQ's than Philadelphia-born black children. However, their IQ's improved as a function of the number of years spent in Philadelphia, regardless of their age of migration. Referring to both the Lee finding and the disappearance of gains from short-term educational programs, Stein and Susser say:

> The loss of advantage might also have been due to the short duration of the stimulus of the special programs. A sustained stimulus might be needed to sustain an accelerated rate of development. All the pedagogic programs analyzed here were set in unfavorable social circumstances, and their effects can be conceived as altering favorably the balance of forces impinging on the children. When the program ended, the unfavorable forces existed unopposed. Such after-effects of the program as there may be seem to be insufficient in themselves to counter-balance an unfavorable array of existing forces. (p. 390)

Summary. IQ scores during the first year of life bear little predictive relationship to later IQ's. However, the correlation between early and later IQ gradually increases until at the age of 11 the correlation with the score at 16 is around .92. This suggests that the IQ is relatively stable. There are, however, frequent incidents of IQ changes of whole groups, as in the case of children of canal-boat workers. Finally, while short-term changes in environmental circumstances do not seem to produce long-term IQ changes, there is some evidence that a permanent change in environmental circumstances may produce long-term changes in IQ.

School Achievement

Performance on tests. Studies of achievement test scores and grades in school over time indicate that academic achievement is fairly stable. Although a large number of studies have reported correlations extending over one or two years, only a few have reported correlations over three- to eight-year periods. One exception to the typical time span is the British study by Douglas and his colleagues (1964, 1968). They report a follow-up study of more than 5,000 children from entry into primary school through completion of secondary school, using IQ tests and achievement tests. We will turn to this study in a moment.

The studies cited in Bloom's (1964) review suggest that for periods of from three to eight years the relative standing of a student on achievement tests remains stable. The correlations found in studies that lasted at least three years are presented in Table 4.4. Figure 4.5 presents these results in diagrammatic form. It should be noted that a variety of different achievement tests have been used. Bloom suggests that the different reliabilities of the tests may account for the differing correlations.

The Douglas study of children in Great Britain is noteworthy because of its large sample and the length of the follow-up. The sample consisted of 5,362 young people who were selected from all those born in Great Britain in the first week of March, 1926. At age sixteen and a half, 4,720 of the subjects were thought to be living in Great Britain. Some information is available for 98% of these subjects, and full tests results for 77% or 3,626 pupils. This latter group is used for the discussion of test scores. The researchers had information on: IQ and achievement test scores at ages 8, 11, and 15; teacher ratings of behavior at ages 13 and 15; self-rating inventory at age 13; goals and interests at ages 13 and 15; age of leaving school and results of "pupil examination"; health information at ages 6, 7, 11, and 15; and interviews with mothers at 8 weeks, 2, 4, 6, 7, 8, 9, 11, and 15 years.[11] Between 8 and 11 years, middle class children improved in test performance more than did lower class children, especially in non-verbal IQ scores. Between 11 and 15 years of age, the divergence continued for reading and mathematics, while the average non-verbal and verbal IQ scores converged between 11 and 15 years. Douglas et al. (1968) attribute the divergence in non-verbal test scores between 8 and 11 years to special pressure from middle class parents at the point when various secondary schools selected their students. In Scotland, where there is less pressure, the gap in non-verbal IQ is greatest at 8 years and narrows at 11 and 15 years. Figure 4.6 presents the English results in diagrammatic form.

It should be noted that social class differences in test performance at each age are larger on achievement scores than on IQ scores. Douglas et al. write that "the difference between the scores made in attainment and in intelligence may be taken as a rough indication of the extent to which pupils in the different social classes are doing better or worse in their school work than would be expected" (p.21).

In Great Britain students may quit school or switch to alternative schools at 15 years of age, and many students of manual working class families did just that: only 36% of the lower manual working class remained after fifteen. Although part of this social class difference in leaving school is explained by the better academic performance of the middle class students, the difference holds even when students are equal in ability. Half of the lower working class pupils of high ability

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[11] The IQ and achievement tests given to the subjects were the following:
(1) 8 years: picture IQ, sentence completion, reading, vocabulary
(2) 11 years: IQ test, reading, vocabulary, arithmetic
(3) 15 years: IQ test, reading, mathematics.

TABLE 4.4

Test-Retest Studies of School Achievement[1]

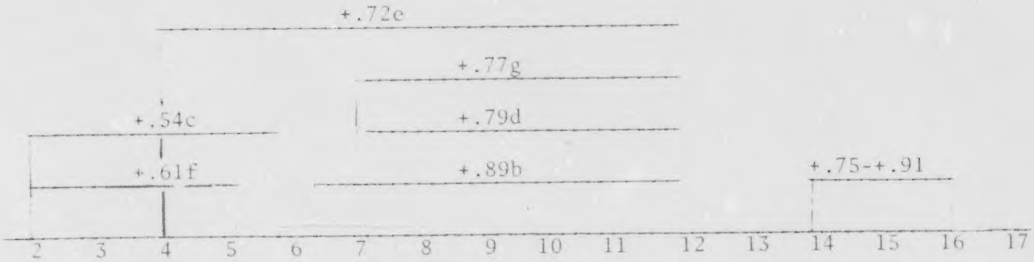
Notation on Chart	Author and Date	N	Grades	Test	Correlation
ACHIEVEMENT TESTS					
a	Adam, 1940	241	9-12	Coop. English Total	.77
b	Haggerty, 1941	171	6-9	New Stanford Ach. Total	.89
c	Hildreth, 1936	47	2.9-6.9	Stanford Ach, Total	.54**
d	Krantz, 1957	251	7-11	Iowa Basic Skills and Iowa Ed. Development	.79*
e	Scannell, 1958	581	4-12	Iowa Basic Skills and Iowa Ed. Development	.72
f	Townsend, 1944	105	2-5	Metropolitan Ach. Total	.61**
g	Traxler, 1950	36	7-12	Coop. Reading Comp. Tests	.77
GRADES					
a	Byrnes and Henmon, 1935	250	10-1st sem. college	Grades	.64
b	Hicklin, 1962	92	9-12	Grades	.73
c	Kelley, 1914	174	4-9	Grades	.62

*$p < .05$
**$p < .01$

[1] Adapted from Bloom, 1964

FIGURE 4.5

A. CROSS-GRADE CORRELATIONS OF ACHIEVEMENT TESTS



B. CROSS-GRADE CORRELATIONS OF GRADES GIVEN BY TEACHERS

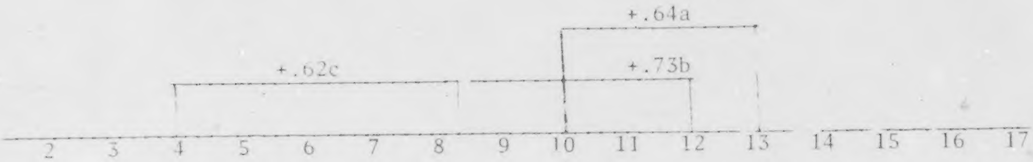
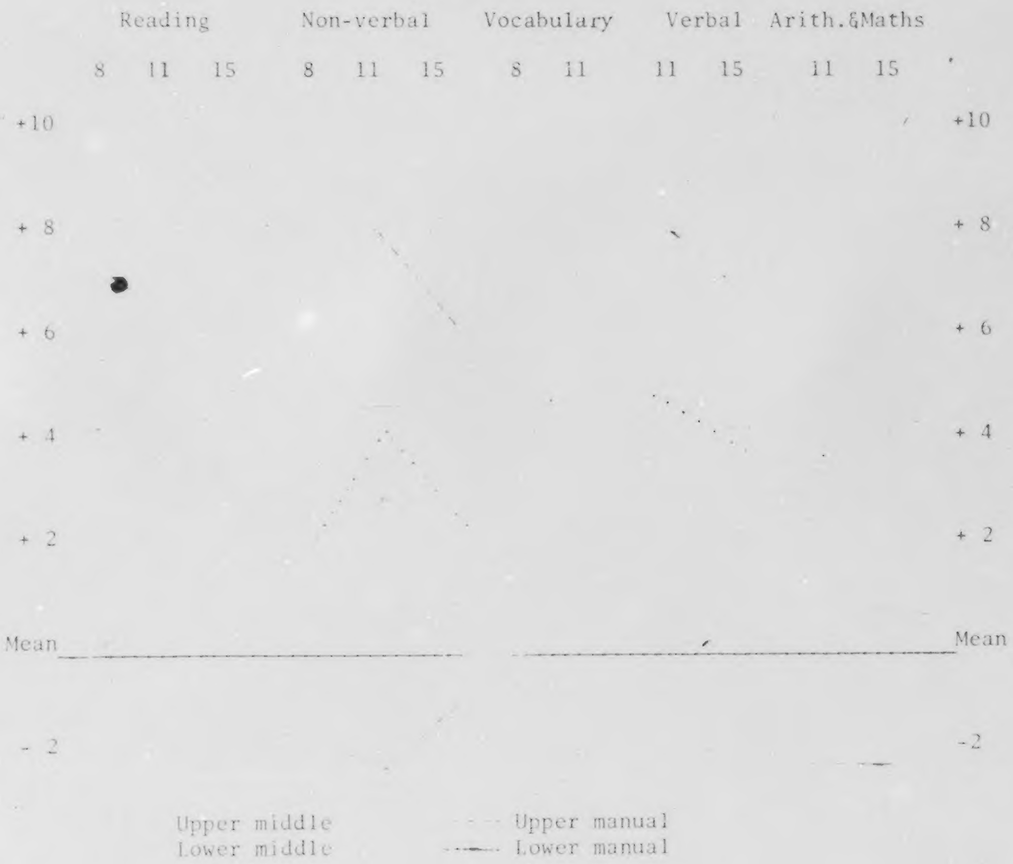


FIGURE 4.6

Achievement Test Scores as a Function of
[illegible] Social Class



The individual test scores of pupils in England and Wales grouped by their social class. (Differences from means of all classes.)

(Douglas, Ross and Simpson, 1968, p. 18) (top 16%) left school by age 16, compared with only 19% of the high ability upper middle and 22% of the high ability lower middle classes. Table 4.7 presents the proportions of students in each class and ability group who stayed at school and gained certificates. As can be seen from the table, the social class differences are even greater for students of less ability.

Bloom, also, points to different achievement patterns for children of different social classes. For example, Alexander (1961) found, in his study of reading comprehension from Grade 2 to Grade 8, that the majority of students with parents in professional occupations made gains in reading achievement, while the students with parents in unskilled occupations made much smaller gains or sustained losses. Bloom also cites studies of identical twins reared apart and of achievement score gains in different college settings to illustrate the effect of environment on educational attainment.

Achievement-oriented behavior. The previous section has dealt primarily with test performance, using grades, standardized achievement tests, and so forth. Fewer studies have examined behavior oriented toward achievement, such as effort and persistence. The three studies mentioned here all dealt with the subjects of a longitudinal study conducted by the Fels Research Institute.

Kagan and Moss (1962) published an analysis of the data from 89 subjects, in an attempt to relate childhood behavior to adult concern with intellectual competence. They used a number of achievement variables, all of which involved "clinical" evaluations of the child's attempt to perform various tasks, his goals, the amount of time devoted to tasks, persistence, and several measures of fear of failure and withdrawal from tasks. They found that achievement behavior during the first three years (i.e., persistence on sensory-motor tasks) was unrelated to achievement behavior between 3 and 14 years. However, achievement behavior at age 10 was significantly correlated with achievement behavior in adulthood (mean age=24); likewise intellectual mastery at age 10 to 14 was significantly correlated with adult concern with intellectual competence. Table 4.8 presents the correlations (males and females together) between achievement-related adult and childhood variables.

The table indicates some stability of achievement behavior from childhood to adulthood. The correlations were generally in the same direction for males and females; indeed the major consistent difference appeared to be significant correlations between female achievement at three to six years and the various adult variables, where as the relations for males did not become significant until six to ten years. Thus the Kagan and Moss analysis reveals continuity between achievement behaviors during the first 4 years of school and behaviors in adulthood.

Ryder (1967) reanalyzed the Fels data, using a different method of analysis and also found stability in achievement orientation. Crandall and Battle (1970) reanalyzed the Fels data distinguishing between intellectual effort and academic behavior. The former includes "behaviors which exercise,

TABLE 4.7

Proportions Staying at School and Gaining Certificates Related to Ability and Social Class

Percentage Table

Social Class		60 and Over	55-59	50-54	45-49	44 and less
		Ability at 15 years				
		% completing session 1961-2				
Middle	Upper	97	93	86	69	40
	Lower	94	79	59	36	17
Manual	Upper	90	67	35	22	6
	Lower	80	46	27	12	3
		% starting session 1962-3				
Middle	Upper	90	82	71	42	20
	Lower	78	52	37	20	8
Manual	Upper	67	43	20	10	3
	Lower	50	20	12	4	2
		% gaining good certificates				
Middle	Upper	77	33	11	4	--
	Lower	60	18	6	--	--
Manual	Upper	53	15	2	1	--
	Lower	37	9	3	--	--
		% gaining general certificates				
Middle	Upper	94	79	54	27	20
	Lower	87	59	38	13	1
Manual	Upper	86	45	17	5	--
	Lower	69	31	12	2	--

(Douglas, Ross, and Simpson, 1968, p. 204)

TABLE 4.8

Relation between Childhood and Adult Achievement and Recognition Behavior

Child Variable	Age	Adult Variables				
		Intellectual Behavior	Recognition Behavior	Intellectual Concern	Fear of Failure	Withdrawal
Achievement	0- 3	-.03	-.07	-.06	-.01	-.03
	3- 6	.24*	.23*	.33**	-.24*	-.15
	6-10	.37***	.51****	.57****	-.34***	-.29
Achievement						
Intellectual	10-14	.36***	.58****	.60****	-.30**	-.30**
Mechanical	10-14	.36**	.30**	.43***	.00	-.03
Athletic	10-14	.06	-.12	-.30**	.00	-.13
Recognition	6-10	.42****	.45****	.46****	-.26**	-.28**
	10-14	.26*	.36***	.36***	-.15	-.26
Competitiveness	3- 6	.14	.08	.00	-.15	-.26
	6-10	.40***	.37***	.38***	-.22*	-.35***
	10-14	.04	.21	.13	-.04	-.09
Expect Failure	6-10	-.07	-.23*	-.11	.17	.17
	10-14	-.32**	-.55****	-.48****	.34**	.37***
Withdrawal	3- 6	.05	.07	.20	.18	.09
	6-10	.03	.00	.18	.25**	.31**
Withdrawal Task	10-14	-.05	-.28*	-.20	.33**	.42***

*p .10
**p .05
*** p .01
****p 001

Adapted from Kagan and Moss, 1962.

maintain or increase knowledge of intellectual skills in activities that are not demanded by the individual's vocation, academic status, or other pragmatic demands of the life situation." Academic effort involves such variables as the number of hours spent studying, number of credit hours taken each term and difficulty of subject matter. They found that IQ performance at early ages has little relationship with the amount of academic and intellectual effort in adulthood. They point out that approach behaviors (such as effort) would be determined more by situational and motivational factors than by skills and abilities. However, IQ increases for females between three and six were significantly correlated (r=.51) with intellectual effort, while IQ increases for males between six and ten were significantly correlated (r=48) with academic effort.

The antecedents of adult academic effort were similar for both males and females; dependency, adult orientation, and peer alienation were common. On the other hand, the behavior of boys making intellectual efforts in adulthood seemed to indicate a resistance to socialization pressure. The resistance has taken widely different phenotypical forms: "first boisterous physical aggression and persistence in a form of achievement (physical skills) especially devalued by their mothers, then particularly feminine behaviors, and then openness about sexual activity and few attempts to display culturally appropriate attitudes in the adolescent interview" (pp. 71-72). In females, the indices of this same nonconformity did not appear until adolescence. The intellectual effort of girls, as opposed to their achievement effort, however, was more likely to be independent due to the mother's cessation of support for dependency.

Summary. There does appear to be some degree of stability in achievement. Bloom (1964) concluded "by age 9 (grade 3) at least 50% of the general achievement pattern at age 18 (grade 12) has been developed, whereas at least 75% of the pattern has been developed by about age 13 (grade 7)" (p. 105). However, the direction of consistent changes in achievement appear to be related to the environment of the child.

Personality Characteristics

We know less about the stability of personality characteristics than we do about the stability of IQ and achievement (Bloom, 1964; Kagan and Moss, 1962). "This has been a difficult area to measure and one is struck by the lack of a unified view about how to measure these characteristics and the general lack of instruments which are regarded as clearly valid and useful by workers in the field" (Bloom, 1964, p.133). Measures of personality characteristics lack the degree of standardization possessed by IQ tests, and there is no one test which is as widely accepted as is the Stanford-Binet in the area of IQ. It follows that there are few longitudinal studies using the same or similar instruments.

Another obstacle to the identification of stable or unstable personality characteristics is that traits are difficult to define: (1) the same characteristic may be expressed in different ways at different ages, (2) groups may express the same characteristic differently or more subtly (e.g., dependency in males and females), or (3) the same behaviors may reflect different underlying characteristics at different ages. Are "verbal aggressiveness to peers" in childhood and "competitiveness in adulthood" both expressions of a stable characteristic of aggression? Is the stability of dependency in girls greater than it is in boys because the characteristic itself is more stable, or because its mode of expression is more stable? Bloom (1964) has noted the ambiguity of findings concerning personality stabiligy:

> The observations, which are translated into ratings, are made on the overt behaviors of the subjects. As such, they are indications of the outward manifestations of personality rather than the more deep-seated characteristics. It is quite possible that individuals do learn the appropriate behaviors for each age period and for the role required by our society--and that it is the variations in these learned behaviors which are represented by the observation and ratings reported... in studies of personality characteristics. The more deep-seated characteristics would be displayed only in the subtlest ways, if they are discouraged by the society. Thus the difference...in the stability...may be artifacts of the methods of observations and ratings used in these studies. It is likely that only through more sensitive methods of measuring personality characteristics will the fully stability of these deeper aspects of personality be revealed. (pp. 156-157).

Bloom (1964) identified three major techniques for assessing personality characteristics: (1) observations made by others, (2) measurements intended to minimize the amount of conscious control of responses by the subject, e.g., Rorschach Test, Thematic Apperception Test, and (3) self-report by means of a questionnaire or check list. The first of these techniques, combined with information gained through interviews, provides most of the data on dependency and aggression we will discuss. In addition to the techniques used to obtain measurements, the emphasis of the study may be used to categorize studies of personality. Block (1971) distinguished between studies which focus on variables *per se* (e.g., the correlation of measures of aggression over the years) and studies which focus on "the interplay of personality variables within the people these dimensions characterize and...the significance of different patterns of interplay" (p.10). While the first focus reveals differences between people on some personality characteristic, the latter provide information on different characteristics within the individual. We will first review information concerning the stability of two characteristics--dependency and aggression-- and then will look at a recent analysis of consistent "personality types", i.e., of the relationship of characteristics within the individual over time.

Aggression. Three longitudinal studies provide information concerning the stability of "aggression". A problem with the research is that aggression has been defined in a number of ways and the operational definitions are not always comparable. Kagan and Moss (1962) considered behavior to be aggressive if "the goal of behavior was...psychological or physical injury to a person or personal surrogate". The childhood aggressive variables they used are: (1) aggression to mother, (2) physical aggression to peers, (3) indirect aggression to peers (unprovoked, nonphysical aggression), (4) behavioral disorganization (crying, tantrums, rages) or low tolerance for frustration, (5) conformity to adults, (6) dominance of peers, and (7) competitiveness. Between 3-6 and 10-14 years of age, "indirect aggression to peers" and "dominance" were relatively stable for both boys and girls, while "behavioral disorganization" was stable for boys only. Variables considered to be aggressive in adulthood were: (1) aggressive retaliation, (2) ease of anger arousal, (3) competitiveness, (4) aggression conflict, and (5) criticism of parents. For males, all the measures of childhood aggression at six to ten years correlated significantly with adult competitiveness. Males also evidenced significant correlations of anger arousal with both aggression to mother and behavioral disorganization at three to six years. The correlations for females were much lower than those for males and were frequently not significant. Table 4.9 presents some of the highest correlations found between measures of aggression taken at 6-10 and 10-14 years and measures taken in the twenties.

Tuddenham (1959) compared the ratings of personality variables made at approximately 16 and 33 years for a group of 72 individuals, and found the most stable rating for the males to be aggressive motivation (r=.91).

Block (1971) compared measures of aggression when his subjects were in junior high school, senior high school, and when they were adults in their thirties. He found competitive behavior to be fairly unstable in males and females. However, aggressive reaction (i.e., over-reaction to minor frustrations, irritableness) was modestly stable for men, although not for women, and expression of aggressive thoughts was somewhat stable for women and men.

In summary, aggression appears to be more stable for males than for females, or more precisely, aggresssion as measured by the particular indices used is more stable in males than in females.

Dependency-passivity. A second personality characteristic which has been studied longitudinally is dependence--dependence on others for support and direction, and passive response to frustration and difficulties. This characteristic, like aggression, is differentially stable for males and females, although here the females are more stable.

Kagan and Moss (1962) used six childhood indices of dependence: (1) passive reaction to frustration, (2) general dependence on female adults (0-6 years), (3) affectional dependency (6-14 years), (4) instrumental dependency (6-14 years), (5) independence (3-14 years), and anxiety over loss

TABLE 4.9

Longitudinal Studies of Aggression and Related Characteristics

		Variables			Correlations		
Study	N	Childhood	Adult	Age	Male	Female	Both
Kagan and Moss, 1962	71	Aggression to Mother	Aggressive retaliation	8-24	.32*	.09	.24*
				12-24	.47**	-.13	.31**
		Aggression to Mother	Anger arousal	8-24	.37**	.23	.32**
				12-24	.77****	.24	.51****
		Aggression to Mother	Competitiveness	8-24	.36**	-.09	.20
				12-24	.28	-.07	.20
		Aggression to Mother	Aggression anxiety	8-24	-.44***	-.42**	-.43****
				12-24	-.42**	-.36*	-.36**
		Behavioral disorganization	Aggressive Retaliation	8-24	.32*	.09	.24*
				12-24	.47**	.13	.31**
		Behavioral disorganization	Anger arousal	8-24	.42**	.12	.29**
				12-24	.52***	.08	.37***
		Behavioral disorganization	Competitiveness	8-24	.34**	.15	.33***
				12-24	.59***	-.39**	.25*
		Behavioral disorganization	Aggression anxiety	8-24	-.39**	-.18	-.27**
				12-24	-.34*	-.14	-.23*
		Dominance	Aggressive retaliation	8-24	.44***	.29*	.37***
				12-24	.48**	.17	.37**
		Dominance	Anger arousal	8-24	.25	.26	.25**
				12-24	.47**	.09	.35**
		Dominance	Competitiveness	8-24	.59****	.29*	.44****
				12-24	.36	.00	.30*

TABLE 4.9 (Continued)

		Variables			Correlations		
Study	N	Childhood	Adult	Age	Male	Female	Both
Kagan & Moss, 1962	71	Competitiveness	Competitiveness	8-24	.51***	.32***	.47****
				12-24	.39*	.08	.28*
		Indirect aggression to peers	Competitiveness	8-24	.51***	.07	.33***
				12-24	.45**	-.03	.39***
Block, 1971	171	Competitiveness	Competitiveness	12-16	.27**	.19	
				16-35	-.06	.10	
		Anger arousal	Anger arousal	12-16	.45****	.32****	
				16-35	.29**	.10	
		Expresses hostility	Expresses hostility	12-16	.16	.34***	
				16-35	.26**	.92***	
Tuddenham, 1959	70	Aggression	Aggression	16-36	.68	.07	

* p .10
** p .05
*** p .01
**** p .001

of nurturance (0-10 years). Passivity was stable for both boys and girls during the first 10 years of life, but with no significant correlations between passive ratings at 0-6 years and those at 10-14 years for boys. Independence was stable for females over the 3-14 year period, erratic for boys. Adult measures of dependency included: (1) dependency on love object, (2) dependency on parents, (3) dependency on friends, (4) withdrawal from stressful situation, (5) conflict over dependency, and (6) dependency and vocational choice. In general, adult correlations for dependency were higher for females. For females, adult withdrawal from stress was significantly and positively associated with passivity at ages 6-14 and negatively associated with independence at ages 6-14. For males, the relationships were less consistent. As Table 4.10 indicates, ratings of passivity at ages 6-14 correlated with most of the adult measures of dependency for females, although the relationships did not hold for males.

Tuddenham (1959) found self-sufficiency significantly correlated at 16 and 36 years for females but not for males. Submissiveness was not stable for either males or females; and autonomy was persistent for men but not for women. Block (1971), however, did find submissiveness to be stable between senior high school and adulthood for females but not for males. The same pattern-stability for females but not for males was found for autonomy.

Unfortunately, two other longitudinal studies which have assessed dependence combined males and females in their analyses (Peck and Havighurst, 1960; MacFarlane et al., 1954).

In sum, passivity and dependency are more stable for females than for males. But Bloom (1964) points out the ambiguity of this finding: "...we do not know for certain whether males and females are really different in this respect or whether the longitudinal findings are more nearly symptoms of the different forms that this characteristic takes in males and females, and (of) the difficulties of observing and rating this characteristic in males as contrasted with females" (p.155).

Personality types. Studies of continuities in personality configuration yield a more wholistic picture of the individual through time. Studies of this type are fewer than those of continuities in specific characteristics, but a recent, thorough study of personality continuities is reported by Block (1971) in Lives Through Time. Block combined the data of two California longitudinal studies -- the Guidance Study and the Oakland Growth Study. His final sample consisted of 84 males and 87 females. The same individuals were contrasted in early adolescence (junior high), middle adolescence (senior high), and adulthood (fourth decade). Using a technique of factor analysis, distinct "types" of people were identified. "For a developmental context, a type may be defined as a subset of individuals characterized by a reliably unique or discontinuously different pattern of co-variation across time with respect to a specifiable (and non-trivial) set of variables." (p. 109)

TABLE 4.10

Longitudinal Studies of Dependency and Related Characteristics

Study	N	Variables: Childhood	Variables: Adult	Correlations: Age	Correlations: Male	Correlations: Female	Correlations: Both
Kagan and Moss, 1972	71	Passivity	Dependency on love object	8-24	.25	.33*	.31***
				12-24	.26	.23	.35**
		Passivity	Dependency on parents	8-24	-.18	.29*	.00
				12-24	.01	.47**	.16
		Passivity	Dependency on friends	8-24	-.03	.07	.00
				12-24	.02	-.44**	-.18
		Passivity	Withdrawal from stress	8-24	.27	.48***	.35***
				12-24	.36*	.67****	.50****
		Passivity	Conflict over dependency	8-24	-.15	-.45**	-.33***
				12-24	-.30	-.39**	-.39***
		Passivity	Security in vocational choice	8-24	.05	.55****	.22*
				12-24	.22	.54***	.30**
		Independence	Dependency on love object	8-24	-.02	-.35**	-.22*
				12-24	-.25	-.41**	-.41***
		Independence	Dependency on parents	8-24	-.04	-.29**	-.16
				12-24	.10	-.39**	-.11

TABLE 4.10 (Continued)

		Variables		Correlations			
Study	N	Childhood	Adult	Age	Male	Female	Both
		Independence	Dependency on friends	8-12	-.08	.16	.05
				12-24	-.13	.47**	.24
		Independence	Withdrawal from stress	8-24	-.31*	-.35**	-.33***
				12-24	-.25	-.57***	-.46***
		Independence	Conflict over dependency	8-24	.15	.31	.25**
				12-24	.49**	.33	.44***
		Independence	Security in vocational choice	8-24	-.03	-.40**	-.23*
				12-24	-.28	-.48**	-.31**
Block, 1971	171	Withdrawal from frustration	Withdrawal from frustration	12-16	.41****	.34***	
				16-35	.05	.17	
Heck & Havinghurst, 1960	34	Emotional independence	Emotional independence	10-16			.79
				13-16			.95***
MacFarlane et al., 1954	41	Emotional independence	Emotional independence	7-14			.34
				9-14			.51
				11-14			.66
Tuddenham, 1959	36	Self-sufficiency	Self-sufficiency	16-36	.08	.55**	

* p .1

** p .05

*** p .01

**** p .001

Block identified five types of males and six types of females with similar personalities or characters at the three ages studied and who evidenced similar changes or stabilities between the periods. Although there were a number of people who did not clearly belong in any of the groups, the types obtained yield support for the consistency of personality. Although it is impossible to paint an adequate portrait of the nine personality types here, a brief description of the types is given in Table 4.11. The first descriptive comment of each type is that used by Block to designate the outstanding characteristics of the type.

Predictor Variables

We now turn to data from studies of predictor variables; childhood events, characteristics, or circumstances that may have a distinct and measurable effect upon adult life chances. This discussion covers the five most commonly studied predictor variables: (1) birth difficulties; (2) single parent families; (3) child abuse and neglect; (4) IQ; and (5) mental retardation. Of these five, birth difficulties (especially prematurity) seem to be associated most closely with specific negative adult conditions. Not surprisingly, the evidence suggests that low-birth-weight infants born into families of low SES are more likely to be permanently affected than are their equally premature counterparts in higher SES families.

We do not take up SES as an independent predictor in childhood, although, as is well known, SES "correlates with everything". The main problem is that SES is hard to characterize as a treatment or a condition applied to a child. By SES we mean something very much like social class. We usually index it through parent income and education, but the index reflects a sea of social class differences in parent life styles, norms of child rearing, personality factors and peer and community social organization. Probably one of the reasons why SES is so important as a variable is that the index is a catch-all for any or all of these social class differences. We find that it again and again enters as an interacting factor in determining the ultimate influence upon the child of the factors under review below.

Birth Difficulties

Are there definite long term effects of various types of birth difficulty (e.g., prematurity, anoxia) which allow us to predict adult characteristics? The type of birth difficulty which we are most interested in is "reproductive casualty" (Pasamanick and Knoblock, 1966), which refers to events during pregnancy and birth that result in damage localized in the central nervous system of the fetus or newborn infant. Pasamanick and Knoblock believe that minimal birth damage mediates many of the effects of various birth difficulties:

TABLE 4.11

Block's Typology

Males

(1) *Ego Resilient*: evidences long standing characterological integrity and resourcefulness; in junior high has inner direction, accepts responsibility, has respect for and respect from family and peers; in senior high the core qualities remain with more interest in philosophical problems, more cognizance of the usefulness of power, is a leader among peers; in adulthood has greater self-confidence and self-flexibility, lessening of cognitive spontaneity, occupationally satisfied.

(2) *Belated Adjuster*: achieved growth and competence after a troublesome and unpromising adolescence; "nasty" in junior high, increasing maturity in senior high but still narrow in interests and easily frustrated; contributing member of society in adulthood although residues of lack of confidence and self concern remain.

(3) *Vulnerable Overcontroller*: characterized by excessive constriction of personality and developing failure of ego defenses; tense, uneasy, introverted in junior high; still overcontrolled, suspicious of others, and lacking self-confidence in senior high; and anxious, detached, hostile, resentful, unhappy in adulthood with neither satisfying vocations nor companions.

(4) *Anatomic Extrovert*: characterized by "valuelessness and the absence of inner life; prototypical All-American" adolescent in junior high, being likable, predictable, and not fundamentally disruptive; peer-oriented and assertive but more rebellious and less competent in senior high; in adulthood is tense, lonely, defensive, and moodily hostile with a lack of personal meaning and a prevailing bitterness.

(5) *Unsettled Undercontroller*: pervasive impulsivity; in junior high is rebellious, dominant, brashly independent; in senior high the impulsivity and wild thinking continue but with more despair and reflection on life; in adulthood, a moody undercontroller -- playful, hostile when angry, highly self-critical, and more responsible than previously; downwardly mobile.

Females

(1) *Female Prototype*: manifests in an exemplary way the qualities our culture prescribes as appropriate for its females; vivacious, pretty, dependable, socially attuned, interpersonally oriented in junior high; in senior high is similar, but more talkative, less candid and compassionate, more self-centered; in adulthood is *Good Housekeeping* feminine, at ease with herself and others, nurturant, poised, somewhat over-controlled and cliched, transmitter of social values.

TABLE 4.11 (Continued)

(2) *Cognitive Coper*: has processed encounters with the world intellectually; in junior high was over-controlled, easily fearful, overtly submissive, concerned with intellectual matters, and on the periphery of her peer groups; in senior high has greater self-confidence and expertise with peers, is intellectualized, ambitious, afraid to become affectively close to others, independent; as an adult displays unusual personal maturity and social accomplishment, receptive to and active upon social environment, warmer and more relating and trusting.

(3) *Hyper-Feminine Repressive*: essence of personality is a repressive but unarticulated character structure, fitful emotionality alternating with blandness, and sexuality both unwitting and deliberate; in junior high was innocuous, fearful, hyper-feminine, and excessively dependent on family; in senior high is still hysterically bland, repressive, and hyper-feminine; in adulthood is the "hysteric personality" -- aloof but eroticizing, moody but emotionally bland, preoccupied with body, brittle and edgy, sense of alienation.

(4) *Dominating Narcissist*: self-absorbed and uses aggressive interactions to advance desires; in junior high is pushy, spoiled, histrionic, cool, and disrespectful toward adults; in senior high is condescending, over-reactive in hostility to frustration, guileful and guiltless, pseudo-sophisticated and fickle, little inner life; in adulthood is highly poised, extremely aggressive in relationships, under-controlled and self-indulgent, materialistic and unconcerned with issues and values.

(5) *Vulnerable Under-Controller*: unmodulated impulsivity of action and re-action together with poignant and plaintive submissiveness that prepares way for exploitation by others; in junior high is "largely unsocialized", being volatile, self-indulgent, casually hostile, irresponsible, unattractive; in senior high has greater inner life but in form of romantic adolescent fantasies, moody and inconsistent, impulsive and hostile, unpoised, sense of defeat; in adulthood is disorganized, dependent, brittle, and still impulsive, patently exploitable, has moved past interpersonal turmoil to apathetic dismay.

(6) *Lonely Independent*: highly motivated assertiveness and desire for autonomy, with interpersonal unconnectedness; in junior high is assertive, autonomous, self-respecting, but seems to hide hostility and weaker parts of self; in senior high is independent, ambitious, intellectualized in orientation, ambivalent to adults, uncomfortable with femininity; in adulthood personality core continues -- intellectually active, independent, pushy, suspicious, uneasy with affect, hostile on self and others, trapped in emptiness.

> Since prematurity and complications of pregnancy are associated with fetal and neonatal death, usually on the basis of injury to the brain, there must remain a fraction so injured who do not die. Depending upon the degree and location of the damage, the survivors may develop a series of disorders. These extend from cerebral palsy, epilepsy, and mental deficiency through all types of behavioral and learning disabilities which are a result of lesser degrees of damage sufficient to disorganize behavioral development and lower thresholds to stress. (p. 7)

Thus, there is a continuum of reproductive casualty, ranging from minor to major consequences for the normal development of the infant.

A number of different events or conditions occurring during the prenatal and perinatal period might conceivably produce brain damage, among them prematurity, anoxia, hypoglycemia, hemolytic disease, and mechanical injury during the delivery (Graham et al., 1962). The two discussed at length here are prematurity (i.e., low birth weight) and anoxia, or oxygen deprivation.

Low birth weight. The most prevalent abnormality is low birth weight; in turn, low birth weight is associated with many types of reproductive complications (Birch & Gussow, 1970). Birth weight is usually the sole criterion of prematurity, but Drillien (1964) has pointed out that three distinct groups of infants may have low birth weight, with different outcomes for each group: a) infants born at term to mothers of small stature; b) infants born after a short gestation period; and c) infants born near term but markedly underweight as a result of intrauterine malnutrition. To be most useful, birth weight should be used in conjunction with other variables. Nevertheless, most studies of the consequences of prematurity have used a birth weight of 2,500 grams or less as the criterion.

Below we discuss the consequences of low birth weight for the following outcome measures: IQ scores, school achievement, social adjustment, and physical development.

a) IQ scores -- One major source of information is the Baltimore study of 500 single born premature infants and 492 full-sized controls born in Baltimore in 1952. Evaluations were conducted at 40 weeks, 3-5 years, 6-7 years, 8-10 years and 12-13 years (Harper et al., 1959; Knoblock et al., 1956; Weiner et al., 1956; Weiner, 1968; Weiner et al., 1968). At each testing there was a difference between the normal and low birth weight groups in favor of the normal infants (controlling on an individual basis for demographic variables such as race, sex and SES). Infants who weighed less than 2000 grams at birth were affected most severely: they scored 5 points lower than the controls on the Stanford-Binet at 6-7 years and 6.2 points lower on the WISC between 8-10 years. The average WISC score of all prematures weighing below 2,500 grams was 4.9 points lower than the controls.

A second major study--using matched pairs--was conducted by Douglas (1956, 1960), who followed a group of prematures until they were 11 years old. The infants were matched with full-term infants on the basis of age, sex, position in family, type of home background, age, and social class of parents. At eight years (n=407 matched pairs) and 11 years (n=309 matched pairs) the test scores of prematures were significantly lower than those of their controls. Douglas found greater IQ decrement among the least premature in terms of gestation age (or "small for date") low birth weight infants.

On the other hand, several studies have failed to find differences in IQ corresponding to differences in birth weight (Robinson and Robinson, 1965; Bell, Taylor, and Dockrell, 1965; McDonald, 1964; and Knehr and Sobol, 1949). In the first of these studies there were discrepancies among the three groups in social class, age of child, and mother's education. The mean IQ's of both normal and low birth weight infants in the Bell, Taylor, and Dockrell study are unusually high, and data on socioeconomic background were not provided. In the third study, McDonald's, the sample was large, and IQ at six to eight years was compared with that of the population as a whole. The mean IQ's of the sample and population at large showed no difference. Critics of this study point out that the comparison with the population norms might not be appropriate; that the IQ tests may not have been equivalently administered and scored for the two groups; and that the samples were not similarly selected (i.e., all damaged children--cerebral palsy, deaf, blind, IQ below 50--were omitted from the premature sample before comparison). Furthermore, Caputo and Mandell (1970) noted that infants weighing less than 3 pounds 1 ounce in McDonald's study scored lower than the larger birth weight groups across all social class divisions. The Knehr and Sobol study, while reporting a mean IQ of 98.2 for their premature group at 6-10 years of age, did not report a significant correlation between birth weight and IQ.

Thus the studies reporting no association between IQ and birth weight do not appear as reliable (as well conducted) as those which do show an association. Present data thus suggest a relationship between birth weight and IQ scores, with lower birth weight being associated with lower IQ scores.

An important question is whether there is an interaction between the detrimental consequences of low birth weight and socioeconomic status. Birch and Gussow (1970) looked at the results of prematurity in all social classes included in the Drillien, McDonald, and Baltimore data and found prematurity detrimental to children of all social classes except the upper class group in McDonald's study. (See Table 4.12). The detrimental effects of prematurity were slightly larger for the lower income children in the studies by Drillien, McDonald, and Douglas.

TABLE 4.12
Comparison of Mental Development Data from
Three Longitudinal Studies

Drillien (1964): Mean DQ scores at 4 years

Birth Weight	Social Class			All Cases	
(pounds, ounces)	Upper	Middle	Lower	Mean	Number
3-9	97.1	72.8	63.6	80.2	40
3-9-4-8	102.2	93.1	84.0	96.8	77
4-9-5-8	103.8	101.4	87.8	99.2	123
5-8	110.2	102.7	95.3	106.7	126

McDonald (1964): Mean Stanford-Binet IQ scores at 6-9 years

	Social Class							
Birth Weight	Upper		Middle		Lower		All cases	
(pounds, ounces)	Mean	Number	Mean	Number	Mean	Number	Mean	Number
< 3-1	106.7	29	98.4	64	92.3	38	98.5	131
3-1-3-8	121.6	16	102.7	95	98.2	56	103.0	167
3-9-4-0	111.8	54	104.2	161	98.1	86	103.8	301

Baltimore (Wiener et al., 1965): Mean Stanford-Binet IQ scores at 6-7 years of age

	Social Class							
Birth Weight	Upper		Middle		Lower		All cases	
(grams)	Mean	Number	Mean	Number	Mean	Number	Mean	Number
< 1,500	95.5	12	88.1	23	81.6	9	88.9	44
1,500-1,999	101.1	10	88.8	31	88.7	27	90.6	68
2,000-2,500	103.3	73	91.9	142	86.1	86	93.0	301
> 2,500	104.9	116	93.4	184	89.3	109	95.6	409

F ratio for birth weight: 7.77, e, and 810 df, $p < .001$

(Birch and Gussow, 1970, pp. 60-61)

TABLE 4.12 (Continued)

Baltimore (Weiner et al., 1968): Mean Wechsler Intelligence Scale for Children IQ scores at 8-10 years of age

Birth Weight	Social Class							
	Upper		Middle		Lower		All cases	
(grams)	Mean	Number	Mean	Number	Mean	Number	Mean	Number
1,500	88.6	13	81.1	18	86.0	10	84.7	41
1,501-1,999	91.7	15	91.8	32	82.7	27	88.5	74
2,000-2,500	94.8	93	89.1	110	89.0	99	90.8	302
2,500	98.0	145	94.7	158	89.9	102	94.7	405

F ratio for birth weight: 10.84, 3, and 810 df, $p < .001$

A study conducted in Scotland provides further support for an interaction effect between birth weight and SES. Illsley (1966a) found that the IQ scores of lower class children of low birth weight were seriously depressed. The scores of upper class children, however, showed little change. These results suggest that a good postnatal environment may overcome possible detrimental consequences of low birth weight, but that the combination of low birth weight and a "poor" postnatal environment may do serious harm.

b) Academic Performance -- Several studies (Drillian, 1961; Alm, 1953: Katz and Taylor, 1967; and Moore, 1965) indicated an abnormally high proportion of low-birth-weight infants are in special classes or institutions for mentally retarded children. For example, Alm (1953) found that, compared to normal-birth-weight infants, twice the proportion of low-birth-weight children attended special classes and four times the proportion were in institutions. Similarly, Drillien (1961) found high proportions of very low-birth-weight children in special classes (18%), in schools for the physically handicapped (18%), and in lower levels of regular classes. Differences are also revealed by examining grade placement in regular schools. The Baltimore study (Wiener, 1968) indicated that grade placement varied with birth weight: 72% of the full sized, 57% of the larger prematures, and 45% of the smaller prematures were in appropriate grades. Harmeling and Jones (1968) found that, equating children for sex and social class, dropouts had the lowest birth weights, slow learners middle, and normal learners the highest birth weights. Douglas (1960) reports that the prematures in his sample scored lower than their controls on an academ[illegible] selection exam given at age eleven. He identified three groups of environmental variables relevant to achievement: 1) social and educational background of both parents, 2) maternal care and management, and 3) interest of parents in school progress. Performance was improved with superiority of family background on any of the variables, but even a single detrimental factor lowered the proportion of premature children (compared to normal children) who passed the placement exam:

> Thus, so far as school achievement is concerned, prematurity once again represents a potential risk differentially realized according to the environment in which it occurs. A poor environment is, then, a special threat to a premature, and prematurity is a special threat to a child from a poor environment. (Douglas, 1960, p. 69)

Although there are insufficient data to prove the existence of an interaction effect between prematurity and environment when considering school achievement, the recent studies do all point to an association between prematurity and school achievement and/or school placement.

c) Social adjustment and deviant behavior -- In addition to having lower IQ scores and lower academic performance, low birth weight children appear to be more subject to personality disturbances than controls. In 1962, Wiener reviewed ten studies on personality development, and only one failed to find a higher incidence of low birth weight in the groups with personality disorders. The most frequent disorder among premature groups appears to be lack of concentration. For instance, Drillien (1961) found that 78% of her very low birth weight sample had some type of behavior problems, with the most frequent problems being lack of concentration (43%) and insecurity (30%). Pasamanick, Rogers, and Lilienfeld (1956) found premature children over-represented in groups of children with behavior problems; lack of concentration in conjunction with hyperactive, confused and disorganized behavior was the most frequent of the disorders. (These last results hold for prematurity with other prenatal or perinatal complications, not for prematurity alone.)

Other investigators who have found differences in behavior ratings which are associated with birth weight are: Wortis et al. (1964), who studied a group of 2 1/2 year-olds; Vernon (1967), who studied the deaf, premature child; and Moore (1966) who divided a group of 137 premature retardates at the median birth weight. He found that the higher birth weight group had higher scores on the Vineland Social Maturity Scale than the lower birth weight group.

d) Physical development -- More physical defects, especially visual problems and central nervous system disturbances, are found in low birth weight infants than in normals. Visual impairment has been reported by Dann et al. (1964), Drillien (1961), and Lubchenco et al. (1963). Neurological damage was found in 30 of Lubchenco's 63 very low birth weight children (three pounds four ounces or less). Knoblock and Pasamanick (1966) state that many of the prematures in the Baltimore study exhibited the syndrome of "minimal damage" at 40 weeks. Scores on the Bender-Gestalt test, which is frequently used to assess neurological impairment, have been found to be highly related to birth weight (Vernon, 1967; Wiener et al., 1965).

Perinatal anoxia. "Perinatal anoxia" refers to an inadequate supply or use of oxygen, although "inadequate" has no precise and simple definition. "In infants anoxia is commonly inferred from the fact that certain bodily disturbances, such as delay in respiration, muscular flaccidity, cyanosis or pallor, occur at a time when there is thought to be a reduction in oxygen available to the organism" (Graham et al., 1962). A deficiency in oxygen supply may affect cellular development, and its effects on the brain are highly variable.

In an effort to clarify previously conflicting results concerning the role of perinatal anoxia in behavioral development, Graham et al. (1962) identified three groups of infants at birth: (1) normal full term newborns; (2) anoxic full term newborns; and (3) newborns with other complications including prematurity, EBF, hypoglycemia, and birth injury. The total number of infants was 421, 191 of which were normal. At three years of age, the 355 remaining infants were given three types of tests: (1) cognitive tests (Stanford-Binet, vocabulary scale, and "concepts tests"); (2) perceptual-motor tests; and (3) personality assessments.

The results of the tests indicated that perinatal anoxia may have an adverse effect on cognitive development. Anoxic children performed poorer than controls on all of the cognitive tests, with impairment being greatest on the concepts test. The anoxic children also exhibited more positive and suggestive neurological findings than normals. There were no significant differences on the perceptual-motor tasks, and personality differences were significant for only one individual characteristic (distractibility) and the composite score. The children who had evidenced other complications as infants also performed more poorly on the cognitive measures and showed more positive and suggestive neurological indices. But no impairment was found in personality or on perceptual-motor tasks. Related to the previous discussion of prematurity is the finding that the premature subgroup accounted for most of the impairment in the "other-complications" sample.

These same children were then followed up at seven years of age by Corah et al. (1965), who found the differences between the anoxic full-term babies (N=101) and the normal babies (N=134) had been attenuated. Some differences remained: the mean IQ of the anoxic group was three points lower than that of the normal group (not significant) and the anoxic group had significantly lower scores on the WISC vocabulary subtest, on a test of perceptual-motor functioning (copying designs), and on a test of reading accuracy. Also, a greater number of anoxic children were rated by psychiatrists and psychologists to be more impulsive, distractible, and ineffective in communication. The Vineland IQ scores were also lower for the anoxic group.

Graham et al. cite four other follow-up studies on the effects of asphyxia (Schacter and Apgar, 1959; Fraser and Wilks, 1959; MacKinney, 1958; Prechtle and Dijkstra, 1959). Each of these studies found some differences between children who experienced asphyxia and the controls, but the particular differences found varied from study to study. Graham et al. conclude:

> Considering the results of all of these studies, it may be safe to conclude that, between perinatal status and development, there probably is a significant association which is related to the severity of the perinatal condition and which, in some individuals, foreshadows handicapping abnormality. For the majority of children the consequences are apparently minor. (p. 46)

Both Graham et al. (1962) and Corah et al. (1956) argue that prediction of deficits in childhood from an individual's status when born is impossible at this time. Correlations between newborn ratings and outcomes are simply not sufficiently high. One problem is that a single deficit may be manifested in different ways at different ages; some manifestations may decrease, some increase, and others remain stable with age:

> It is clear that the age at which a behavior trait is measured is a relevant variable. It is also reasonable to assume that some behavioral deficits cannot be demonstrated until the child has developed sufficiently to show them. What remains, then, is the question as to whether a type of impairment, once it has appeared in behavior, will appear in different behaviors at different ages, but still be identified as the same deficit. (Corah et al., 1965, pp. 29-30)

Other Complications of Pregnancy. A series of retrospective studies on the relationship between prenatal experience and later disorders has been collected by Pasamanick and his collaborators. The control children were matched on race, sex, SES, hospital, and age of mother of children who evidenced the particular clinical condition of concern. Table 4.13 presents the disorders and the percentage of various types of birth difficulties found in the record of the clinical groups having the disorder and their controls. The first five disorders have been found to be significantly associated with both prematurity and other complications of pregnancy. The five are cerebral palsy (Lilienfeld and Pasamanick, 1954), epilepsy (Lilienfeld and Pasamanick, 1954), mental deficiency (Pasamanick and Lilienfeld, 1956) behavioral disorders and reading disabilities (Kawi and Pasamanick 1958). Tics were significantly associated with complications of pregnancy but not prematurity (Pasamanick and Kawi, 1956), whereas childhood speech disorders showed no associated to prematurity or complications in the absence of cerebral palsy or mental deficiency. Strabismus, hearing disorders, and childhood autism were significantly associated with complications of pregnancy and prematurity, whereas accidents were associated with only prematurity. However, juvenile delinquency was associated with neither birth complications nor prematurity. Thus, associations have been found between a variety of disorders and problems in birth.

The Children of Kauai. Additional information on the effects of perinatal stress comes from a major longitudinal study conducted on the island of Kauai in the Hawaiian chain. Werner, Bierman, and French (1971) followed the course of all pregnancies and births on the island until the children were ten years old. At ten years of age, the children assessed numbered 1012, representing 90% of the original sample. At two years of age assessments included all existing information, plus teacher questionnaires, home interviews with mothers, and two group tests (Primary Mental Abilities (PMA) and Bender-Gestalt). The child's family environment was also rated during the prenatal to two-year period and at age ten. The early environmental rating used was: (1) SES (father's occupation, standard of living as rated by interviews during home visit, arrangements for medical care, and degree of crowding in living quarters); (2) family stability (information such as legitimacy of child, presence of father, presence of severely disrupting events such as marital discord, alcoholism and emotional disturbance, and long-term separation of the child from the mother without any adequate substitute caretakers); and (3) intelligence of the mother (estimate based on number of years of schooling, clinical judgment). The environmental ratings at age 10 used: (1) SES (father's occupation, income level, steadiness of employment, and conditions of housing); (2) educational stimulation (quality of language models, values of family on education, facilities and help provided by the parents, availability of learning supplies and reading material, etc.); and (3) emotional support (interpersonal relations between parents and child, opportunities for satisfactory identification, kind and amount of reinforcements used, and presence or absence of traumatic experiences.)

TABLE 4.13

Maternal and Fetal Factors in Neuropsychiatric Disorders

Disorder	Number of Children in Study Group		One or More Complications in Pregnancy (%)				Prematurity[b] (%)				Neonatal Abnormalities[c] (%)			
			Study Group		Control Group		Study Group		Control Group		Study Group		Control Group	
	White	Non-White	W	N	W	N	W	N	W	N	W	N	W	N
Cerebral Palsy	561		38.0		21.0		22.0		5.0					
Epilepsy	275	122	27.7	50.8	18.8	43.4	12.9	15.3	3.8	12.3	17.2	13.6	5.7	3.3
Mental Deficiency	404	235	34.4	60.0	25.2	55.0	16.3	18.4	7.0	11.6	18.0	7.7	7.5	6.1
Behavioral Disorders	625	215	33.0	64.0	25.0	51.0	6.0	17.0	2.0	5.0	5.0	4.0	3.0	2.0
Reading Disorders	205	...	37.6	....	21.5	....	11.5	....	4.6	....	7.8	....	3.9	...
Tics	51		33.3		17.6		4.0		6.0		37.3		25.5	
Speech Disorders	272	...	25	....	19	....	5	....	8	....	9	....	11	...
Strabismus	398		22.9		16.1		13.6		7.8		22.4		13.8	
Hearing Disorders	124		24.0		11.5		16.1		7.3		17.1		13.3	
Accidents in School Children	725		17.8		16.3		8.0		5.2		15.0		12.8	
Autism	50		51.0		17.0		21.0		12.0		64.0		28.0	
Juvenile Deliquency	300		8.5		11.1		3.6		3.8		....		....	

[a] In last 5 studies only complications of pregnancy or those related to pregnancy were included; abnormalities of labor and delivery and diseases associated with pregnancy were excluded.

[b] Birth weights 2,500 gm (5.5 lb.) or less.

[c] Convulsions, cyanosis and asphyxia.

The overall incidence of low birth weight (2,500 grams or under) was 7.4 percent, but it was estimated that 3.2 percent of the infants were the normal babies of small mothers. The babies whose weight ranged from 1,500 to 2,500 grams had about the same proportion of intellectual, emotional, and physical problems as did the heavier babies, although they did have more perceptual problems.

The births were classified according to the degree of perinatal stress they entailed. Class I was comprised of babies born with no unusual difficulty; Class II included babies weighing under 2,500 grams who required no special care and babies with minor defects and conditions (e.g., skin tabs and hernias); Class III included low birth weight babies who required special medical care during the newborn period; and finally, Class IV contained severely handicapped babies who required long-term, specialized care. The two year follow-up indicated an association between severity of perinatal stress and subsequent development. With increasing severity of stress, the proportion of children increased who were rated below normal (by pediatricians) in physical development and intellectual status and who scored below normal on Cattell IQ and Vineland Social Quotient (SQ). Mean Cattell IQ's were 99.4, 98.6, 97.6, and 85.5 for Class I, II, III, and IV, respectively. Furthermore, "the effects of perinatal stress appeared to be greater among children whose parents were poor, had little education, or were unstable, than among children whose parents were better off economically, better educated, and more stable" (p. 133).[12] Children with severe perinatal stress growing up in a favorable environment and children with severe perinatal stress growing up in an unfavorable environment differed in mean Cattell IQ points by 16-34 points, depending upon which environmental variable was used. In contrast, children growing up in favorable environments with severe perinatal stress and with no perinatal stress differed by only 6-7 IQ points.

However, by age 10 the effects of perinatal stress were present only in a small group of children with IQ's below 75 who had significant physical problems, and required placement in special classes or institutions. The mean PMA IQ for those with severe perinatal stress was 97, and 103 for those with moderate, little or no stress. Except for the children placed in institutions, there were no differences among the perinatal stress groups in the percentages of poor grades, language problems, perceptual problems, or behavioral problems. Werner et al. concluded that "perinatal complications are related to physical and cognitive deficits at school age, but that such deficits are reasonably minimal for all but the most severely stressed group" (p.68).

In families of high SES, high educational stimulation, and high emotional support, children at age ten with and without perinatal stress differed little in PMA IQ scores. There were slight differences between the severe perinatal complication group and the other groups when the environmental ratings were poor, but the interaction effect between perinatal stress and environmental ratings was not statistically significant. The mean PMA IQ of children

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[12] See Table 4.14 (next page) for results of statistical analyses. Only two of six interaction effects between perinatal stress and environmental variables were statistically significant.

TABLE 4.14

Percentages of Children Rated "Below Normal" on Two-Year Criteria, by Environmental Factors and Severity of Perinatal Stress

Environmental Variable	Severity of Perinatal Complications None (0)	Mild (1)	Moderate (2)	Severe (3)	Results of Statistical Test
	PERCENTAGE IN EACH VARIABLE CLASSIFICATION BELOW NORMAL				LIKELIHOOD RATIO TEST
For Physical Health Status					
Socioeconomic Status					
Low and very low	12.2	13.8	21.4	66.7	
Medium	10.9	15.9	22.0	22.2	X^2=15.87
High and very high	7.5	16.7	16.7	50.0	
Family Stability					
Low and very low	26.7	0.0	33.3	66.7	
Medium	6.8	16.7	7.7	33.3	X^2=29.50*
High and very high	11.1	16.0	24.4	25.0	
Estimate of Mother's Intelligence					
Low and very low	20.0	19.5	27.3	50.0	
Medium	8.3	14.6	18.5	28.6	X^2=20.82
High and very high	8.8	13.6	21.7	33.3	
For Psychologist's Clinical Assessment of Intelligence					
Socioeconomic Status					
Low and very low	8.6	20.7	42.9	66.7	
Medium	10.0	12.1	17.1	22.2	X^2=28.09*
High and very high	18.0	4.2	0.0	0.0	
Family Stability					
Low and very low	13.3	40.0	100.0	66.7	
Medium	16.7	14.6	23.1	33.3	X^2=37.80**
High and very high	8.6	11.4	15.6	12.5	
Estimate of Mother's Intelligence					
Low and very low	12.0	26.8	36.4	50.0	
Medium	13.8	15.7	18.5	14.3	X^2=36.44**
High and very high	4.9	1.7	17.4	33.3	

TABLE 4.14 (Continued)

	MEAN SCORE (AND STANDARD DEVIATION)				ANALYSIS OF VARIANCE
For Cattell IQ					
Socioeconomic Status					
Low and very low	98(11)	96(12)	93(12)	61(37)	S F=11.37**
Medium	100(12)	100(11)	98(14)	91(8)	P F=6.89**
High and very high	102(12)	100(11)	104(20)	95(13)	SXP F=2.58*
Family Stability					
Low and very low	96(12)	90(10)	83(6)	77(8)	F F=9.99**
Medium	99(11)	98(10)	96(8)	73(46)	P F=7.71**
High and very high	100(11)	100(12)	99(16)	94(6)	FXP F=1.42
Estimate of Mother's Intelligence					
Low and very low	98(12)	94(10)	89(16)	80(9)	I F=7.00**
Medium	98(11)	99(12)	97(11)	84(29)	P F=5.74**
High and very high	102(11)	101(10)	102(16)	96(8)	IXP F=1.13
For Vineland SQ					
Socioeconomic Status					
Low and very low	116(13)	117(16)	113(19)	102(16)	S F=0.87
Medium	118(13)	116(12)	113(15)	116(24)	P F=1.56
High and very high	115(12)	118(11)	119(15)	102(29)	SXP F=0.97
Family Stability					
Low and very low	117(15)	113(12)	92(7)	89(7)	F F=9.22*
Medium	116(12)	114(11)	116(13)	127(6)	P F=3.04*
High and very high	117(13)	118(14)	115(16)	116(24)	FXP F=2.65*
Estimate of Mother's Intelligence					
Low and very low	115(15)	113(12)	104(19)	94(3)	I F=10.73**
Medium	117(13)	117(13)	114(14)	117(29)	P F=2.21
High and very high	118(12)	119(14)	118(14)	123(6)	IXP F=1.79

NOTE: Reprinted, by permission of the American Academy of Pediatrics, from E.E. Werner, K. Simonian, J.M. Bierman, and F.E. French. 1967. Cumulative effect of perinatal complications and deprived environmental on physical, intellectual, and social development of preschool children. Pediatrics, 39: 490-505.

*p .05
**p .01

(Werner, Bierman, and French, 1971. pp. 56-57) with severe perinatal stress coming from homes rated "high" in educational stimulation was 114, as compared with a mean IQ of 92 for children with severe perinatal stress coming from homes rated "low" on educational stimulation. Table 4.15 presents the mean scores made on the PMA IQ by groups of children experiencing different environmental conditions and different degrees of perinatal stress.

Social Class, Incidence, and Effect. This brief review of some of the data concerning long-term effects of birth difficulties supports Pasamanick and Knobloch's formulation of a "continuum of reproductive casualty." The more abnormal the birth process, the more likely it is there will be negative effects in later life. Furthermore, there is some evidence that both the incidence of birth difficulties and, possibly, the negative effects of the difficulties, may be associated with the social class of the family. The incidence of birth difficulties is greater in lower social classes, and there may be increased deleterious effects of the damaged in the lower social classes.

> ...these abnormalities of pregnancy are associated with certain life experiences, usually socioeconomically determined, and consequently...they themselves and their resulting neuropsychiatric disorders are found in greater aggregation in the lower strata of our society. (Pasamanick and Knobloch, 1966, p. 7)

Many studies locate a higher incidence of birth complications in the lower class, and especially in the lower class black population. Prematurity and socioeconomic status were found by Rider et al. (1955) to be negatively correlated in a white sample; an incidence of 5% was found in the highest economic tenth and 7.6% in the lowest. The black sample had an incidence of prematurity of 11.4%. The data on complications of pregnancy show even more divergence; the incidence was 5% in the upper and 14.6% in the lower economic fifth of the white population and 50.6% in the black population. The complications appear to be associated with maternal health and nutrition, inadequate prenatal and postnatal care, and bearing children too often and when too old and too young (Amante et al., 1970; Birch and Gussow, 1970). Tompkins, Mitchell, and Wiehl (1954) have found that supplementary vitamins and proteins decrease the incidence of toxemia and prematurity. Some of the neurological consequences of malnutrition on the infant have been discussed by Cravioto (1968):

> If there is a strong possibility that malnutrition interferes with intersensory organization, a few words about the possible mechanisms of action may be relevant. Theoretically, malnutrition could act either directly by interfering with the development of the central nervous system, or indirectly....Malnutrition also modifies the growth and biochemical maturation of the brain. The increase of cell cytoplasm, with the extension of axons and dendrites--one of the two main morphological processes associated with the growth of the human brain at birth--is largely a process of protein synthesis. (pp. 48-50)

TABLE 4.15

Means and Standard Deviations of 10-Year PMA IQ for Three Environmental Variables by Severity of Perinatal Stress

	Severity of Perinatal Stress								Results of Statistical Test^a	
	None N=421		Mild N=233		Moderate N=172		Severe N=36			
Environmental Variable	$\overline{X}$	SD	$\overline{X}$	SD	$\overline{X}$	SD	$\overline{X}$	SD		
Socioeconomic Status										
High	112	(11)	113	(12)	114	(11)	110	(1)	SXP	F= 0.21
Medium	108	(12)	106	(13)	105	(12)	101	(13)	P	F= 2.03
Low	99	(11)	100	(11)	99	(12)	94	(14)	S	F=26.04**
Educational Stimulation										
High	115	(10)	114	(10)	112	(12)	114	(7)	EDXP	F= 0.65
Medium	105	(11)	109	(11)	106	(11)	106	(7)	P	F= 0.87
Low	98	(11)	98	(11)	97	(12)	92	(13)	ED	F=49.22**
Emotional Support										
High	108	(12)	107	(11)	105	(12)	100	(13)	EMXP	F= 1.76
Medium	105	(11)	106	(12)	105	(11)	104	(10)	P	F= 6.67**
Low	98	(11)	99	(12)	97	(15)	86	(11)	EM	F=28.04**

NOTE: Reprinted, by permission of the American Academy of Pediatrics, from E.E. Werner, J.M. Bierman, F.E. French, K. Simonian, A. Conner, R.S. Smith, and M. Campbell. 1968. Reproductive and environmental casualties: A report on the 10 year follow-up of the children of the Kauai pregnancy study. Pediatrics 42: 112-127

[a] Symbols used to designate variables: (S) socioeconomic status, (EM) emotional support, (ED) educational stimulation, and (P) perinatal stress.

**p .01

(Werner, Bierman, and French, 1971, p 72)

The negative effects of malnutrition on pregnant mothers and their infants would center in the population which experiences the most malnutrition. In addition, Birch and Gussow (1970) have recently documented that the poor, especially the black poor, receive inadequate prenatal and postnatal care. Amante et al. (1970) go further in noting that the quality of health care stems partly from the organization of the medical system.

> Medical care is more easily available for the middle class population, and it is within the range of middle class financial means; for the middle class's bureaucratic organization structure is easily adapted to, and the quality of medical care tends to be of a superior nature. The opposite situation prevails for the poor.... Obviously the poor have real problems articulating their health needs with the bureaucratic structures of the medical machinery they encounter. In summary, then, the ecological distribution of brain damage appears to be a complex function of the interaction of a set of social forces differentially impinging upon various social class groupings and/or ethnically divergent groups. (pp. 119-120)

Unfortunately, the same system which raises the incidence of "minimal brain damage" also increases the deleterious consequences. The literature reviewed suggests (for there are some conflicting findings) that the lower social classes show larger detrimental effects of birth difficulty than do the upper social classes (Drillien, 1964; Douglas, 1956; Illsley, 1966a; McDonald, 1964).

Single Parent Families

Most studies of single parent families have focused specifically on the effects of fatherless homes on male children. Only a few studies have been concerned with the effects of father absence on females (Illsley and Thompson, 1961; Vincent, 1961), or with the effects of mother absence, a less frequent occurrence. There were over six million children in fatherless homes in 1967, according to the 1968 Census. Such families are more frequent among low-income groups, and among low-income Negro families the incidence approaches 50% in some areas (King, 1945; Moynihan, 1965; Pettigrew, 1964). Given this fairly large number of children and the popularity of generalizations about adverse consequences, we need to know how true the generalizations are, if at all. If they are true, a good social policy should concentrate on decreasing the adverse effects, and on removing the known conditions leading to fatherless homes.

Father absence is not a dichotomous variable. That is, a father may be permanently or temporarily absent at various times during the child's life. Each of these kinds of father absence might be expected to have different effects on the child. In addition to different types of father absences, three different outcomes have been studied: (1) juvenile deliquency or other socially disapproved behavior; (2) intellectual ability and achievement; and (3) psychological and social adjustment.

Herzog and Sudia (1970) reviewed more than 400 studies of father absence and identified a "core group" of 60 studies that included a matched control or comparison group. Table 4.16 at the end of this section presents the findings of the major studies. The table uses Herzog and Sudia's information where possible, adding only studies conducted after their 1968 review.

Such studies usually encounter some methodological problems. The major problem of controlling adequately for socioeconomic status (SES) is particularly important for studies of father absence. One-parent and two-parent families differ noticeably in income. Cagle and Deutscher (1964) found that the median for the father-present families in a housing project was $4,071; and for the father-absent families, $2,056. Hess et al. (1968) found that among 81 Negro 'working-class, unskilled' families, four-fifths of the father-absent families had incomes under $3,000 while four-fifths of the father-present families had incomes of $3,000 or more. Thus, distinguishing between the effects of fatherlessness and lower income is a definite problem, especially since SES has only rarely been adequately controlled. Furthermore, the lower income caused by father-absence may require moving, financial worry, work, stress, and less adequate supervision of children. Unfortunately, few studies have inquired into the effects of the conditions accompanying lowered income.

Juvenile Deliquency. Studies relating father absence to juvenile deliquency do not unequivocally support the view that there is a definite association between the two. For example, the association between father absence and juvenile deliquency has been found to vary as a function of ethnic or national background (Shaw and McKay, 1932), income (Eisner, 1966; Willie, 1967), race (Eisner, 1966; Toby, 1957; Willie, 1967), rural vs. urban community (Ferdinand, 1964), age (Monahan, 1960; Toby, 1957), and type of offense (Ferdinand, 1964; Weeks, 1940). Furthermore, there is the problem of differential treatment for children of different socioeconomic or ethnic backgrounds (e.g., Cicourel, 1968; Sterne, 1967). For comparable offenses, youth in some SES groups are more likely to be arrested, while those in other SES groups are more likely to be released and returned to a "stable" home. Although some studies find father absence associated with juvenile deliquency, a recurrent finding is that other factors are more important, especially competent supervision of the child and general family climate or harmony (Nye, 1958: Slocum and Stone, 1963; Ferguson, 1952; McCord et al., 1962). For example, Glueck and Glueck (1962) found that "unsuitable discipline of boy by mother" and "unsuitable supervision of boy by mother" were two of the fifteen variables that distinguished between experimental and control groups. Among the other 13 were "father absence"; "harsh and unsuitable discipline by the father"; "indifference or hostility of the father to the boy"; and "poor work habits of the father". In fact, certain characteristics of *present* fathers may serve to promote deliquency (Gardener and Goldman, 1945; McCord et al., 1962; Robins, 1966). The Gluecks (1962) found that lack of family cohesiveness was more strongly correlated with juvenile deliquency than was father absence.

Other investigators (McCord et al., 1962) have suggested that the conflict preceding the father's absence may be more detrimental than the actual absence itself. Finally, the community has been pointed to as influencing juvenile deliquency. For example, Robins et al. (1966) found that the broken home was not related to behavior problems or academic problems, although both types of problems increased as the SES of the school declined. Furthermore, broken homes are associated with juvenile deliquency in some SES groups but not in all (Eisner, 1966; Willie, 1967). By comparing census tracts in Washington, D.C., Willie found a stronger relationship between broken homes and juvenile deliquency among whites and stronger relation between juvenile deliquency and income level among Negroes.

In summary, Herzog and Sudia conclude that father absence probably contributes less to juvenile deliquency than do associated factors such as socioeconomic level, climate of the home, the nature of parental supervision, and community traits.

> its indicated contribution would be chiefly in the impact of father absence on the mother's ability to maintain effective supervision and a harmonious home climate. The strength of the impact, in turn, could be critically influenced by social and economic factors. (p.19)

Intellectual functioning. The data concerning the effects of father absence on academic performance or IQ scores are not consistent. And, as we saw with regard to juvenile deliquency, father absence appears to assume a contributory rather than a major role. For example, Mackie et al. (1967) found that children enrolled in a preschool program who were from father-present families outperformed those from father-absent families on the Peabody and Primary Mental Abilities scale, and that after the effects of the program had dissipated the father-present children still scored higher. Sutton-Smith, Rosenberg, and Landy (1968) found that father absence had a depressive effect on the college entrance examination scores of children in two- and three-child families, although the effects varied with the size of the family and sibling composition. Blanchard and Biller (1971) found that nine-year-old boys whose fathers were home at least two hours per day performed better on the Stanford Achievement test and made better grades than boys whose fathers were home less than six hours per week. The lowest scores were obtained by the early father absent boys (beginning before age five).

On the other hand, Hess et al. (1968) found no differences on a number of measures (Stanford-Binet IQ, Columbia Mental Maturity Scale, Siegel Sorting Task, or Curiosity Task) between children in father-absent and father-present families at age four before entry into preschool. Finally, a number of survey studies have concluded that school achievement is more closely related to income and social conditions than to father-absence per se (Coleman et al., 1966; Deutsch, 1960; Levinson, 1968; Tabler et al, 1968; Wilson, 1967).

Temporary Father Absence. Studies of temporary father absence on young children, 3-10 years of age, have indicated only minor effects (Bach, 1946; Crain and Stamm, 1965; Sears, 1951). When studies have been conducted soon after the father has returned, some negative effects have been found. Children who spent about their first 16 months in fatherless homes while their fathers were in the military service appeared more hostile, more aggressive, less friendly, evidenced "compulsive" patterns of obedience and defiance, and a number of other special characteristics (Stolz, 1954; Seplin, 1952). The fathers were less warm, more critical, and more severe in discipline than other fathers (Stolz, 1954). Baker et al. (1968) studied older boys (7-10) after their fathers returned from military service and found only minor differences. However, it should be noted that temporary absence has been studied only with middle-class children, emphasis has been chiefly on psychological effects, and the absences have been socially sanctioned.

Masculine Identity. A large number of studies have dealt with the difficulty children might have in developing an adequate "sex role identity" if their father is absent. Without the father home, the reasoning goes, there is no masculine role model or source of identification; thus, the boy may not develop an appropriate sense of masculinity. With the mother as a model and source of identification, the boy may become feminine, show sex role confusion, or develop overcompensatory masculine behavior. Sex role identity is a rather speculative construct, tested for by instruments that rest on face validity--projective tests, masculinity-femininity scales, reversal of the math-verbal ratio, high "field-dependence", and atypical (delayed, accelerated, or disturbed) marital experience. Of the 16 studies reviewed by Herzog and Sudia which use projective tests of M-F scales, half provided positive and half negative evidence for an association between father absence and "confusion of masculine identity".

Biller has conducted a number of studies of the effect of father absence on the sex-role development of boys. He frequently distinguishes between early father-absent boys (beginning before age five) and late father-absent boys (beginning after age five) and between three aspects of sex role: sex-role orientation (self-perception of maleness and/or femaleness), sex-role performance (individual's preferential set toward socially defined representations of sex role), and sex role adoption (the individual's masculinity or femininity as viewed by members of his society). Biller (1969) found that father-absent kindergarten boys had a less masculine sex role orientation (IT scale) and sex role preference (game preference tests) than father-present boys, but they did not differ from father-present boys in sex role adoption (behavior rating scale). Furthermore, for the father-absent boys, the degree of maternal encouragement of masculine behavior was positively related to game preference and to rating scale scores, but not to IT scores.

In a later study, Biller and Bahm (1971) compared the masculine self concepts of early father-absent, late father-absent, and father-present 14-year old boys. On an adjective checklist the early, but not the late, father-absent boys were found to have less masculine concepts than the father-present boys. There was also a relationship between perceived maternal encouragements of aggression and masculinity of self concept for the early father-absent boys, but not for the other two groups.

Biller's research program has focused on family interactions that affect sex role development. He has studied the mother's influence, the effect of perceived father dominance (Biller, 1969), and similarity to father (Biller and Barry, 1971), and has written a review article concerning possible effects of the father-daughter relationship on the female's personality development (Biller and Weiss, 1970). Although Biller's studies tend to show differences among boys with fathers and those without, he stresses that the timing and length of father absence, the sociocultural milieu, the relative availablity of surrogate models, and maternal behavior must all be considered.

Several studies have shown that father-absent boys, more frequently than father-present boys, show a pattern of test scores with verbal scores higher than math scores. This represents a reversal of the usual pattern, for most frequently boys have higher math than verbal scores and girls higher verbal than math scores (Altus, 1958; Carlsmith, 1964; Gregory, 1965; Nelson and Maccoby, 1966; Sutton-Smith et al., 1968). One study (Barclay and Cusumano, 1967) has indicated that father-absent boys are more field-dependent than father-present boys.

There seems to be some personality differences between father-absent and father-present boys. Herzog and Sulia point out, however, that rarely are studies replicated and SES held constant. The study of Norwegian boys whose fathers are sailors is widely quoted as providing evidence for the negative effects of father absence (Lynn and Sawrey, 1959; Tiller, 1957). But this study has been replicated in Italy (Ancona et al., 1963) with decidedly different results. The study conducted in Genoa found no differences between father-absent and father-present boys and a control group on peer adjustment or masculine identification.

Herzog and Sudia draw the following conclusions:

> Two conclusions apply to all the areas considered: (1) the perceptible impact on a boy growing up in a fatherless home is determined at least as much by elements that are present before and after separation from the father as by father absence in and of itself; (2) the impact of father absence on a boy is mediated and conditioned by a complex of interacting variables and probably cannot be explored fruitfully as a discrete critical variable in itself. Two corollaries are:
>
> (a) That a number of parents in the home is probably less crucial to a child's development than the family functioning of the remaining members--which is far harder to determine.
>
> (b) That family functioning is determined, not only by the individual characteristics and interactions of its members, but also by the circumstances and environment of the family unit. (p. 62)

Figure 4.17 following Table 4.16 presents in chart form the possible effects of father absence on behavior.

TABLE 4.16

Reported Differences Between Children in Father-Absent Families and Children in Father-Present Families[a]
(Much of table adapted from Herzog and Sudia, 1970)

Age When Studied	Sex	SES	Nationality or Ethnic Group	Results for Father-Absent as Compared with Father-Present	Ratio Unfavorable vs. Other[b]	Investigators
4	M,F	M,L	W,British	No difference re behavior problems; more enuresis in middle class; physical care seems less good.	2:7	Rowntree, 1955
4	M	L	B	Differences negligible	3:20	Hess et al., 1968
4-5	M,F	L	B	Poorer school achievement	1:0	Mackie et al., 1967
5	M	M,L	W	Less masculine IT scores (sex role orientation) and game preference (sex role preference); no difference on behavior rating scales (sex role adoption)	2:1	Biller, 1969(a)
6	M,F	L	W & B Other minority groups	No difference re school achievement Lower school achievement	0:1 1:0	Coleman et al., 1966
6	M	L	B & [illegible]	Lower masculinity scores; no difference in behavior, or knowledge of sex roles.	1:2	Biller, 1968
3.5-6.5	M,F	M or both	W	Greater anxiety	1:1	Koch, 1961

TABLE 4.16 (Continued)

Age When Studied	Sex	SES	Nationality or Ethnic Group	Results for Father-Absent as Compared with Father-Present	Ratio Unfavorable vs. Other[b]	Investigators
7-9	M,F	L	Trinidad and West Indian	Choose immediate gratification	1:0	Mischel, 1958
9	M	M,L	W	High father-present performed better on Stanford Achievement Test and had better grades than low father-present, late father-absent or early father-absent; the latter group performed most poorly.	2:0	Blanchard & Biller, 1971
6&11 ca.	M	L	B	Lower IQ with cumulative decrement from age 6 to age 11.	1:0	Deutsch and Brown, 1964
9-11	M	L	W	No difference re self concept or family roles	0:10	Thomas, 1968
9-12	M	L	B & W	Early separated: less masculine sex preference, less physically competitive or aggressive. All separated.	5:7	Hetherington, 1966
12	M,F	M,L	W	Males: lower for internal moral judgment, maximum guilt following transgressions, acceptance of blame, moral values, rule conformity; more aggressive Females: no significant differences	6:2	Hoffman, 1971
6-13 ca.	M	L	B & W	Father-absent slightly better in English; achievement scores did not differ when other factors controlled.	0:2	Wilson, 1967

TABLE 4.16 (Continued)

Age When Studied	Sex	SES	Nationality or Ethnic Group	Results for Father-Absent as Compared with Father-Present	Ratio Unfavorable vs. Other^b	Investigators
10-13 ca.	M,F	L	B	Lower on school achievement tests.	2:6	Deutsch, 1960
7-14	M	M or both	W	No difference on "Draw-a-Family" test.	1:6	Lawton & Sechrist, 1962
8-14	M,F	L	Trinidad and Granada	8-9 Choose immediate gratification	1:1	Mischel, 1961
				11-14 No difference		
14	M,F	M,L	W	Less masculine self concept for father-absent before age 5, but not for father-absent after age 5.	1:0	Biller & Bahm, 1971
10-18 ca.	M	L	B	No individual differences re behavior or academic problems. More behavior problems in schools with many absent fathers, except in upper-lower SES.	0:2	Robins et al., 1966
15 ca.	M	M or both		Impulsive-rebellious; socially extroverted	1:9	Hathaway & Monachesi, 1963
12-15 ca.	M	L	Puerto Rican & B	Lower peer status; no difference re M-F, dependency, aggression, or reported family relationships.	1:4	Miller, 1961
15	M	L	B & W	More field dependent; no difference on M-F, or identification with either parent.	1:2	Barclay & Cusumano, 1967

TABLE 4.16 (Continued)

Age When Studied	Sex	SES	Nationality or Ethnic Group	Results for Father-Absent as Compared with Father-Present	Ratio Unfavorable vs. Other^b	Investigators
5-15	M	L	B Barbadian	More feminine but depends on circumstances, role preference more feminine.	3:0	D'Andrade & Whiting, 1966
10-15	M	L	W	Several differences reported re feminine-aggressive behavior, sex anxiety, oral regression. No difference re abnormal fears or gang delinquency. Difficulties attributed to family instability, not father absence.	3:2	McCord et al., 1962
10-16	M	L	B	No differences re school attitudes, problems or achievement. More neurotic symptoms reported.	1:5	Wasserman, 1968
12&17 ca.	M	M	W	No difference re personality, school relationships, attitude to school peer relationships; poorer school attendance.	2:10 ca.	Burchinal, 1964
10-17	M	M,L	B,W	Juvenile delinquency slightly greater but difference not significant.	0:0	Shaw & McKay, 1932
10-17	M	M,L	B,W	Reported for census tracts, not individuals. Delinquency rates higher in tracts with high broken home rate, except for affluent non-white tracts.	3:1	Willie, 1967

TABLE 4.16 (Continued)

Age When Studied	Sex	SES	Nationality or Ethnic Group	Results for Father-Absent as Compared with Father-Present	Ratio Unfavorable vs. Other[b]	Investigators
10-17	M	M,L	B,W Chinese	Juvenile delinquency rate higher for whites (except lowest SES), Chinese and upper-lower SES Negroes but no difference for Negroes in other 3 SES levels.	8:4	Eisner, 1966
14-17	M,F	M,L	B,W	No difference re enrollment and graduation high school as compared with all U.S. children. Nonwhite child less likely to graduate high school, especially if mother less well educated, or receiving AFDC.	1:2	Palmore et al., 1966
14-18	M,F	M	W	Moderate effects re authority, number of problems, and amount of family tension. With stepfather, effects greater on these measures, plus resentment of family life style.	4:10	Moore & Holtzman, 1965
14-18	M	M,L	British	Juvenile delinquency rate higher in voluntary but not involuntary separations. Other family factors outweigh composition.	1:1	Ferguson, 1952
12-18 ca.	M,F	M	W	Report less affection from parents; no difference re achievement, conformity, dependence, independence, mastery, dominance, recognition; "heterosexual striving".	1:7	Bartlett & Harrocks, 1958
16-18 ca.	M	M	W	Lower self-esteem and more psychosomatic symptoms	2:0	Rosenberg, 1965

TABLE 4.16 (Continued)

Age When Studied	Sex	SES	Nationality or Ethnic Group	Results for Father-Absent as Compared with Father-Present	Ratio Unfavorable vs. Other[b]	Investigators
17-18 ca.	M	M,L	W	Slightly more problems reported (21:19); more often included in family councils; earlier economic maturity.	21:19 ca.	Landis, 1953
15 ca.	M	M,L	W	Unhappy unbroken homes show more juvenile delinquency, more psychosomatic symptoms, more problems outside home and with parents.	e	Nye, 1957
15-18 ca.	M	M,L	W	More self-reported delinquency.	6:10	Nye, 1958
15-18 ca.	M	M	W	Higher juvenile delinquency.	2:0	Gregory, 1965 (a)
16-18 ca.	M	L	B (American Indian 3%)	No difference re self esteem. Inadequate father worse than none. Lower sex salience.	1:1	Gordon & Shea, 1967
18 ca.	M	M	W	Lower scores in math, relative to language, other factors produce similar effect.	1:0	Nelson & Macoby, 1966
18 ca.	M	M	W	Lower scores in math relative to language. No difference re grades, graduation, major health or psychiatric referrals.	1:7	Gregory, 1965 (b)
18-19 ca.	M	M	W	Higher language scores; no difference re math; high femininity rating.	2:8	Altus, 1958

TABLE 4.16 (Continued)

Age When Studied	Sex	SES	Nationality or Ethnic Group	Results for Father-Absent as Compared with Father-Present	Ratio Unfavorable vs. Other[b]	Investigators
18-22 ca.	M	M	W	Less close to father before divorce, more sex information, less likely to date in junior high (but not senior high), and rate personality lower as compared to boys in unhappy unbroken homes.	4:14	Landis, 1962
18-22	M	M	W	Lower scores in math, relative to language.	1:0	Sutton-Smith et al., 1966
18-older	M	M	W	Courtship behavior more active and earlier.	2:11	Andrews & Christensen, 1951
19-25	M	M	W	Delays courtship status.	1:0	Winch, 1949
adult	M	M,L	W	Emotional stress; marital instability	11:3 ca.	Gurin et al., 1960
adult	M,F	M,L	W	Greater marital instability, poorer mental health; middle class only.	2:2 ca.	Langner & Michael, 1963
adult	M	L	B	More likely to be single or divorced; feel discriminated against; lack sense of "fate control" and trust re promise keeping.	4:7[d]	Pettigrew, 1964

TABLE 4.16 (Continued)

Age When Studied	Sex	SES	Nationality or Ethnic Group	Results for Father-Absent as Compared with Father-Present	Ratio Unfavorable vs. Other[b]	Investigators
				Temporary Absence		
3-5	M	M	W	Less aggressive; father-absent boys about a year retarded in this characteristic.[f]	3:8 ca.	Sears, 1951
6	M,F	M,L	W,British	Differences "minor"; somewhat more frequent nightmares, nail biting but not bedwetting.	4:2	Douglas & Blomfield, 1958
3-7.5	M	M	W	More likely to be dominant, show hostile aggression. More likely to be aggressed against and to react more passively. Response to adult authority-compulsive obedience and defiance.	15:8	Stolz et al., 1954
5-8	M	M	W	Strong feelings of rejection, rivalry with sibs, and overt hostility. No difference re sexual identification, oedipal involvement or dependency.[f]	3:21 ca.	Baker et al., 1967
5-8	M	M	W	Prolonged oedipal conflict, without intensity increase; persistence of sibling competition and hostility; less overtly competitive and less freely endorsing of father.	6:21 ca.	Baker et al., 1968
7-8	M	M	W	No significant difference.[f]	1:7	Crain & Stamm, 1965

TABLE 4.16 (Continued)

Age When Studied	Sex	SES	Nationality or Ethnic Group	Results for Father-Absent as Compared with Father-Present	Ratio Unfavorable vs. Other[b]	Investigators
8-9.5	M	M	Norwegian	Greater immaturity; inadequate sex identification; poor peer adjustment. F, g	7:8	Lynn & Sawrey, 1959
6-10	M	M	W	Idealistic fantasy picture of the family, with less aggression to and from all members of the family. Resembles picture of father-present girls.	11:5	Bach, 1946
7-10	M	M	Italian	No difference re dependency, pseudo-maturity, feminization, compensatory masculinity. Greater admiration of father. Less likely to be over-protected. F, g	1:14	Ancona et al., 1963
14-1	M	M	Norwegian	Sailor Boys: not feminine, less authoritarian, slightly less likely to assume father role, slightly dependent. No difference in idealized masculinity. More hostility and ambivalence toward mother.	7:3	Tiller, 1961
				Whaler Boys: high on substitution for father, slightly higher femininity and dependency. No difference regarding authoritarianism or idealized masculinity. More ambivalent toward mother. F, g	8:2	
18-19 ca.	M	M	W	Lower math scores in relation to language.	1:0	Carlsmith, 1964

TABLE 4.16 (Continued)

Age When Studied	Sex	SES	Nationality or Ethnic Group	Results for Father-Absent as Compared with Father-Present	Ratio Unfavorable vs. Other[b]	Investigators
18-19 ca.	M	M	W	Greater intensity attachment to mother, ambivalent in their identification to parents; no difference re castration anxiety.	3:10	Leichty, 1960
22-23 ca.	M	M	W	More likely to report antisocial behavior; no difference on disobedience toward parents.	1:1	Stiegman, 1966

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a All differences reported are significant at the .05 level or better, unless otherwise specified.

b Number of reported differences unfavorable to father-absent boys as compared with number of variables showing no significant difference or difference favorable to father-absent boys.

c Indicates that grade levels have been converted into approximately age in years.

d Not reported.

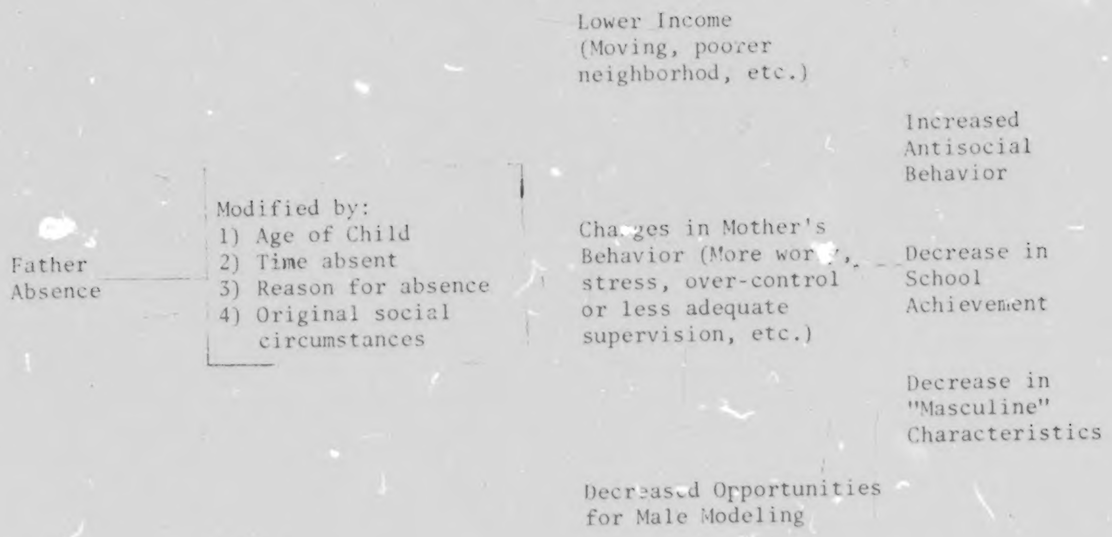
e Number of subgroups makes count of variables impractical.

f Measured during father's absence.

g Measured during father's absence, but absence is periodic so all have also experienced his return.

FIGURE 4.17

Father Absence


Father Absence
Modified by:
1) Age of Child
2) Time absent
3) Reason for absence
4) Original social circumstances
Lower Income (Moving, poorer neighborhod, etc.)
Changes in Mother's Behavior (More worry, stress, over-control or less adequate supervision, etc.)
Decreased Opportunities for Male Modeling
Increased Antisocial Behavior
Decrease in School Achievement
Decrease in "Masculine" Characteristics

Child Abuse and Neglect

Child abuse and child neglect may be thought of as sins of commission and omission. The child who falls into either category is obviously a child at risk; death or permanent injury may be ahead. Conclusive statistics on the number of children who suffer abuse are not available, but there are several surveys which provide a rough estimate. Kempe et al. (1962) reported that a nation-wide survey had identified 749 maltreated children within a one-year period. Seventy-eight of these children died, while 114 suffered permanent brain damage. In 1960 over 200 children were referred to the Massachusetts Society for the Prevention of Cruelty to Children as possible victims of child abuse. A study by the Children's Division of the American Humane Society found 662 newspaper reports of child abuse cases in 1962. Of these children, 148 died from their injuries. Fontana (1964) adds that perhaps for every one case of maltreatment that makes the newspapers, there are "from 50 to 100 abused or neglected children who go without attention" (p. 7).

What are the implications for future development and adult status of children known to be abused or neglected? The question cannot be answered without a prior knowledge of the many gradations and manifestations and the accompanying problems of diagnosis and prognosis.

Definition and diagnosis. The definition of child abuse varies, and frequently the terms neglect and abuse are used together. Fontana (1964) uses the following definition:

> The neglect and abuse of children denotes a situation ranging from the deprivation of food, clothing, shelter, and parental love to incidences where children are physically abused and mistreated by an adult, resulting in obvious physical trauma to the child and often leading to death. (p. 10)

Among the variety of symptomologies classed under the inadequate labels of neglect and abuse are: "failure to thrive" -- characterized by growth failure, signs of severe malnutrition, and developmental retardation; poor personal and skin hygiene; irritability; a repressed personality; nutritional deprivation; and miscellaneous signs of obvious neglect. Neglect may also be implicated in incidences of lead-poisoning in children. More severe abuse is revealed by bruises, abrasions, cuts, lacerations, burns, soft tissue swelling and hematomas. Inability to move extremities because of dislocations, fractures associated with neurological signs of inter-cranial damage, healed or scab-covered "old" abrasions or contusions of the skin are additional signals.

Our knowledge about the mechanisms operating to produce "failure to thrive" is minimal. An often implicated causal factor is "maternal deprivation". However, the term "maternal deprivation" still lacks specificity in denoting the mechanisms that operate to produce the failure-to-thrive syndrome. Bullard et al. (1967) state that recent research has demonstrated the importance of both the quality and the quantity of "mothering" in the etiology of failure to thrive. But they stress that major limitations still remain in our understanding of the parent-child relationship which leads to infant growth failure. The limitations include our lack of knowledge concerning (1) the syndrome's reversibility, (2) the critical events constituting deprivation at different developmental stages, and (3) the role of the child's behavior in the development of the syndrome.

A number of obstacles stand in the way of adequate investigation of child abuse and neglect. Child abuse occurs most frequently in the home, where no outsiders witness the event. Children, too young or too frightened, do not know how to protest their treatment. Physicians who treat an abused child may be unaware of possible abuse and therefore search for other diagnoses. Other doctors shut their eyes rather than become involved in legal complications.

Chronic mistreatment, physical signs of injury, and the social background of the family are deemed important indicators of possible child abuse. The following "index of suspicion", compiled by Fontana (1964), enumerates the principal points to be considered before reporting cases of child abuse:

(1) Characteristic age -- usually under three years;
(2) General health of child -- indicative of neglect;
(3) Characteristic distribution of fractures;
(4) Disproportionate amount of soft tissue injury;
(5) Evidence that injuries occurred at different times and are in different stages of resolution;
(6) Cause of recent trauma in question;
(7) Suspicious family history;
(8) History of previous similar episodes;
(9) No new lesions occurring during the child's hospitalization.

Despite the index it is often hard to distinguish (a) between commission and omission, i.e., between abusive and neglectful families; (b) between failure to thrive stemming from abuse or from some other mysterious factors; and (c) whether physical and/or emotional defects precipitated the abuse or were caused by it. Unwarranted value judgments may intrude in attempting to make distinctions between abuse versus neglect. Aside from blatant examples, neglect and abuse are often used interchangeably because they are simply difficult to distinguish. This undifferentiated usage, however, contributes to the problems of dealing with the phenomena -- both in terms of legal action and developmental implications.

Longitudinal studies. Lack of a clear-cut definition of the neglect-abuse syndrome and the need to rely on circumstantial evidence complicate diagnosis and diminish the chances of selecting a suitable sample for longitudinal study. Accurate statistics are often unobtainable, since only a portion of neglected and abused children are taken to the hospitals for medical attention, and, of these, some are not diagnosed as abused. Furthermore, there are problems in data gathering. Parents who abuse their children are likely to be guarded and antagonistic, fearing legal entanglements or public embarassment. These families also tend to be highly mobile. One study of abused children (Birrell & Birrell, 1968) reports that five years after hospitalization, 33% of the children and families could not be found. In addition, it cannot be assumed that the families who are located and cooperate in long-term follow-up are comparable to those who cannot be found or who refuse to cooperate. Given these limitations, we must realize that the current data are suggestive rather than conclusive.

The Elmer (1967) study is perhaps the best known investigation of the outcome of abused children. Elmer's sample was comprised of children who had sustained bone injuries as a result of suspected abuse, and she did not isolate the children who might have been abnormal prior to experiencing physical abuse. Elmer judged only 10% (2 of 22) of her abused children to be free of physical, intellectual, or emotional problems. Approximately 15% of those living had an IQ of less than 80. Unfortunately, since Elmer did not have a representative sample of diversely abused children, the long-term effects found in the study can only be considered indicative of the possible effects of obvious cases of physical abuse.

Morse, Sahler, and Friedman (1970) included all children seen at a general hospital during a 3-year period who were judged to have experienced abuse or gross neglect. A broader definition of abuse than that of Elmer allowed inclusion of both acts of commission and omission. Abuse was defined "as any willful or grossly careless act on the part of the parent(s) or designated caretaker which resulted in overt physical injury to the child in question. 'Gross neglect' was defined as omission on the part of the parent(s) or designated caretaker to take minimal precautions for the proper supervision of the child's health and/or welfare" (1970, p. 440). The sample represented a wide spectrum of injuries and medical problems due to abuse and/or neglect.

The ages of the 25 children ranged from 2 3/4 to almost 10 years, with a median of 5 1/4 years. Detailed information concerning developmental histories and current status was obtained from 21 of the 25 children. Table 4.18 presents the behavioral status of the 25 children about 3 years after they were seen at the hospital. Morse et al. judged 6 of the 21 children normal, both intellectually and emotionally, at the time of follow-up. However, they pointed out that the children at the same time of follow-up were fairly young, and subtle evidence of mental retardation and emotional disturbance might not have been detected due to either the methods employed or the prematurity of the follow-up evaluation. However, 9 of the remaining children were designated mentally retarded and 6 were designated emotionally disturbed.

In contrast to Elmer, who found only 10% of her abused children to be free of physical, intellectual and emotional problems, Morse et al. concluded that 30% of their children were normal. This difference may have resulted from the variance in definitions; in contrast to Elmer, Morse et al. classified sequellae as severe only if they appeared to be handicapping the child. Both studies showed high incidence of mental retardation (IQ below 80) among abused children -- 55% in the Elmer study and 43% in the Morse study.

A study at the John F. Kennedy Child Development Center at the University of Colorado (n.d.) followed up 42 abused children over a three-year period. Forty-three percent of their study group showed neurologic dysfunction on follow-up examination. Of these, two-thirds had obvious symptoms such as hemiparesis, focal signs, optic atrophy, and pathological primitive reflexes. The other third showed more subtle signs indicating minimal brain dysfunction (milder deficits in gross or fine motor abilities, milder speech or language impairment, etc.). Only 50% of the children showing neurologic dysfunction had a history of skull fracture or subdural hematoma, suggesting that brain damage may result from less severe trauma. As in the other two studies, an IQ below 80 was considered to indicate mental retardation. Of this sample, 33% had IQ's below 80. Failure to thrive, as indicated by height and/or weight below the third percentile, was also found in 14 (33%) of the study children.

In addition to disturbances in physical and cognitive development, retrospective data indicate that the child who is abused may become an abusive parent himself. Helfer and Kempe (1968) have pointed out that most abusive parents were themselves the object of abuse as children. There are a number of retrospective studies (Curtis, 1963; Duncan et al., 1958; Easson & Steinhilber, 1961) which found parental abuse in the childhood history of individuals who had committed various forms of physical assault. Although data from retrospective studies are suggestive at best, they do indicate that violence may play some role in generating further violence.

There are data about two specific forms of neglect, lead poisoning and maturation. In both cases there is some question about the extent of societal, rather than parental, neglect. Lead poisoning or "plumbism" may be more a problem of social neglect than of child neglect. It occurs when children eat quantities of lead-base paint, usually from the walls and woodwork of decaying inner-city buildings. Although the toxic action of lead has been recognized since the time of Hippocrates, only 6 cities and 13 states classified lead poisoning as a reportable illness, and only 9 cities and 3 states have or have ever had any screening programs, as of April, 1971. Yet the Surgeon General has estimated that as many as 400,000 children in America may be suffering from the disease.

Difficulty of diagnosis explains some of the inattention paid to the problem. It is often confounded with viral gastroenteritis, nutritional anemia, behavioral disturbances, epilepsy, mental retardation, or degenerative disease of the brain. A high index of suspicion remains the most valuable aid to diagnosis. The patients who should especially trigger suspicion are children aged 1 to 6, often siblings, who live in deteriorating pre-World War II housing. Plumbism is largely a disease of poor, largely non-white, urban ghetto dwellers.

Undernutrition in young children may, at times, be indicative of child neglect or abuse. Undernutrition can occur through conscious misfeeding of the child (or no feeding at all) or as a result of the more complex 'maternal deprivation' and 'failure-to-thrive' syndromes. A key study dealing with the long-term effects of early undernutrition was done by Chase and Martin (1970). They isolated the following "high risk" factors indicative of a complex pattern of parental stress:

(1) Greater number of siblings, particularly under age 2;
(2) Greater frequency of parental separation before or soon after the birth of the undernourished child;
(3) More frequently unwanted pregnancy;
(4) Higher incidence of alcohol related problems (such as loss of employment); and
(5) Inadequate food money.

Chase and Martin found the following relationships between undernutrition during the first year of life and physical and mental development 2 to 5 years later:

(1) Mental development: On tests given 3 1/2 years after admission to the hospital with undernutrition, the undernourished children scored lower than controls in five areas of DQ (developmental quotient). Mean DQ was 82. Children with undernutrition lasting longer than the first 4 months were the most severely impaired in all categories, with a mean DQ of 70. Nine of ten children suffering undernutrition longer than 4 months had IQ's below 80.

(2) Physical growth: Physical growth was negatively correlated with the duration of undernutrition during the first year of life; the following chart compares physical growth of test children and controls 3 1/2 years after first hospital admission.

Percentage below the third percentile:

	In height	In Weight	In Head Circumference
Controls	15	21	10
Undernourished	68	53	37

In general, the effects of undernutrition during the first year of life on later development depend on the amount of time the child is malnourished. The first year of life is a period of rapid postnatal brain growth, cellular division, and myelination. Chase and Martin reported that neurological findings revealed cerebellar damage in four children who had been undernourished for more than 4 months. Although there is a possibility that a child undernourished for longer than his first 4 months of life could catch up in physical growth given a good environment, it appears that head growth and brain function remain impaired.

Perhaps to a greater extent than other forms of neglect-abuse, malnutrition can arise from sheer parental ignorance concerning nutritional needs. Its classification under the category of abuse is thus less certain. Simply providing nourishment does not solve the problems that led to the child's lack of nourishment. Undernutrition cannot be disassociated from other environmental influences, and appears to be part of a complex pattern exhibited by families under stress. In general, action should include identification of high-risk families and provision of comprehensive intervention before the fact, rather than providing remedies for later symptoms.

TABLE 4.18

Diagnosis and Medical Findings at Initial Hospitalization, New Abuse or Neglect and Developmental and Behavioral Status at Time of Follow-Up Study

Case No.	Initial Abuse			Follow-Up Findings		
	Age (yr)	Medical Findings	Diagnosis	Age (yr)	New Abuse or Neglect	Current Status
1	5 2/12	Gastroenteritis, psychogenic vomiting	Suspected abuse	9 10/12	None known	Superior intelligence and excellent student, but shy, withdrawn with poor peer relationships; frequent headaches, insomnia
2	2	Fractured leg (healing), dehydration, failure to thrive	Suspected abuse and neglect	6 4/12	Bruises	Improvements developmentally but considered slow; responding to warmth and affection of foster family after severe emotional and physical deprivation; occasionally eneuritic and considered spoiled by foster mother
3	2 1/12	Burns	Suspected abuse and neglect	6 5/12	None known	Behavior problem at home, in school; poor peer and sibling relationships; perceptual problems and academic difficulties
4	3/12	Fractured ribs, pneumonia	Suspected abuse and neglect	4 6/12	Medical neglect, pneumonia twice	Intellectually dull, but appeared happy and related well to siblings
5	1 1/12	Fractured arm, mental retardation, failure to thrive	Suspected abuse and neglect	5 3/12	None known	Retarded; has made some progress in day care, but withdrawn and unresponsive at home

TABLE 4.18 (Continued)

Case No.	Initial Abuse: Age (yr)	Initial Abuse: Medical Findings	Initial Abuse: Diagnosis	Follow-Up Findings: Age (yr)	Follow-Up Findings: New Abuse or Neglect	Follow-Up Findings: Current Status
6	1 7/12	Fractured arm, leg (healed), dehydration	Suspected abuse and neglect	5 6/12	Fractured arm, lacerations	Normal
7	3/12	Fractured leg, rib; bruises, lacerated tongue	Suspected abuse	4	Unexplained thumb and head activities	Unknown; interview refused
8	2 7/12	Burns	Suspected abuse	6 1/12	Fractured arm (healing)	Normal development and good academic achievement, but moody, stubborn, cries easily in school; seen by parents as willfully defiant
9 (twins)	3/12	Fractured skull, ribs; bruises	Suspected abuse	3 8/12	None known	Unknown; interview refused
10	3 1/12	Fractured leg	Admitted abuse	6 3/12	None known	Normal
11	4 2/12	Bruises; mental retardation	Suspected abuse	7 3/12	None known	Severely retarded, falling behind academically; progress in establishing good peer relationship; friendly, affectionate
12 (twins)	7/12	Fractured skull, ribs, leg (healing)	Suspected abuse	3 8/12	Detached retina	Unknown, interview refused

TABLE 4.18 (Continued)

Case No.	Initial Abuse			Follow-Up Findings		
	Age (yr)	Medical Findings	Diagnosis	Age (yr)	New Abuse or Neglect	Current Status
13	10/12	Aspiration, pneumonia, bruises	Unclear	3 6/12	None known	Normal
14	1 5/12	Fractured leg, bruises	Suspected abuse	4 2/12	None known	Rapid developmental strides in foster home, but still slow; friendly, affectionate, cooperative child with good peer relations
15	2 1/2 wk	Fractured skull	Suspected neglect	2 9/12	None known	Uncooperative, temperamental, withdrawn child; poor peer relationships; has temper tantrums and nosebleeds
16	11/12	Dehydration, malnutrition	Suspected neglect	3 8/12	Medical neglect, gastroenteritis; infections ten times	Slow developmentally, behavior problem, poor peer relationships; self-induced vomiting
17 (siblings)	1 9/12	Cyanosis	Admitted abuse	4	None known	Frightened, withdrawn, unresponsive child
18 (siblings)	3	Head injury, bruises	Admitted abuse	5 8/12	None known	Frightened, withdrawn, unresponsive child

TABLE 4.18 (Continued)

	Initial Abuse			Follow-Up Findings		
Case No.	Age (yr)	Medical Findings	Diagnosis	Age (yr)	New Abuse or Neglect	Current Status
19	3 7/12	Burns	Admitted abuse	5 11/12	None known	Normal
20	5	Lacerated pancreas and liver	Suspected abuse	7 3/12	None known	Rapid improvement in social and emotional sphere with disappearance of eneuresis and thumb sucking; becoming less withdrawn, but still hesitant with peers; improvement intellectually, but still considered slow in school
21	3 4/12	Bruises	Suspected abuse	6 4/12	None known	Normal
22	6/12	Barbituate poisoning	Unclear	2 9/12	None known	Unknown; interview refused
23	8/12	Fractured skull, collar bone, arm	Suspected abuse	3 3/12	None known	Normal
24	5 11/12	Bruises; mental, motor and social retardation	Suspected abuse and neglect	8 6/12	Malnutrition	Severely retarded, aggressive, discipline problem; no academic progress
25	1 8/12	Bruises	Suspected abuse	3 9/12	None known	Improvement developmentally but still retarded; still hyperactive and aggressive, but has begun to show affection for foster parents for first time

Taken from Morse, Sahler, and Friedman, 1970.

Summary. Unfortunately, the longitudinal research literature on abuse, neglect, and undernutrition as a result of "maternal deprivation", is extremely limited. The studies which have been conducted, however, indicate a relatively high proportion of serious negative outcomes such as brain injury and mental retardation, permanent physical injury, and emotional problems.

IQ

Earlier in this chapter, we reviewed the predictiveness of early IQ for IQ in later development. Here, we will review a limited number of studies directed at the predictiveness of early IQ for later social adjustment.

Measures of IQ correlate relatively highly with concurrent and adult 'adjustment' indicies. However, many of the studies which indicate these relationships did not control for socioeconomic status, and thus the relative contributions of the interplay between IQ and SES is not known. Acknowledging this confounding, we will briefly discuss several major studies which indicate a correlation between early IQ and measures of adult success, 'adjustment', and IQ.

Anderson and his colleagues (1959, 1960) investigated the adjustment at 18 years of eleven-year-olds who had been tested on a variety of measures. They included (1) a Teacher Index -- scores from a check list on the child's responsibility and 20 (undefined) traits; (2) a Pupil Index comprised of such things as attitudes toward family and work, responsibility, interests, psychoneurotic items, sociometric ratings; and (3) IQ. Adjustment outcome measures at 18 were (1) an "adjustment score" derived from personal judgment by others, school grades, school ratings, and (2) a "participation score" based on participation in school and community activities and information regarding dropout, delinquency, or emotional difficulty. Correlations between adjustment scores and IQ and between adjustment scores and Teacher Index were significant for both males (r = .52, .53) and females (r = .45, .54). The males and females who were rated as outstanding in participation at 18 years were above the mean on 11-year measures of IQ, SES, Pupil Index, and Teacher Index. It must be noted that for a group of 14-17-year-old youth followed up at 10-23 years, however, IQ did not relate to early adult status for females, although it did slightly for males.

Havighurst et al. (1962) tried to relate sixth and ninth grade variables to young adult adjustment in 487 small-city adolescents. Unfortunately, many of the relationships are confounded, and it is virtually impossible to point to one specific predictor. The measure of early adult adjustment was based on pooling objective and interview data, job success, educational progress, marital success, and personal competence and satisfaction. Sixth grade IQ correlated significantly (r = .48 with this adjustment measure), but so did other measures. Other childhood correlates of adult adjustment were sixth grade leadership ratings (pooled peer and teacher) -- r = .52, tenth grade California Personality Inventory adjustment scores -- r = .58, and socioeconomic status of parents -- r = .48. Since these four childhood variables are all related, a statement of predictiveness for one of them cannot be made.

Bayley (1968a) followed 58 people through 36 years of life, and found that correlations between IQ at early ages and attained education and occupation varied for men and women. Sixteen-year IQ for females correlated .19 with final education and .38 with Hollingshead occupation ratings. Sixteen-year LI's for males, though, correlated .70 with final education and .72 for occupational level. Concurrent relationships at age 36 between personality adjustment as measured by a 10 item Q-set and WAIS IQ indicated that extroverted maladjustment (e.g., impatient, lacking in controls) was negatively associated with IQ (r's ranged from -.20 to -.60), while introverted adjustment (e.g., socially perceptive, concerned with philosophical problems, having wide interests) correlated between +.20 and +.80 with IQ. Introverted maladjustment and extroverted adjustment showed fewer consistent correlations. For females, the pattern of correlations between kind of adjustment and IQ was not consistent.

Terman and Oden (1959) followed up a group of high IQ individuals, originally selected around 11 years of age, when they were in their mid-40's. The high IQ subjects were more successful occupationally, maritally, and socially than their average controls, evidenced alcoholism and criminal behaviors somewhat less frequently, and were equal in frequency of psychosis and suicides.

In their review of the longitudinal studies relating IQ to later measures of adjustment, Kohlberg, LaCross, and Ricks (1970) state that "a crude quantitative estimate of the predictive power of IQ is the statement that 20% to 35% of the reliable variation in gross ratings or estimates of adjustment in a representative sample of adults can be prediced from elementary school IQ scores". They then go on to stress the limitations of IQ as a predictor variable, nothing that (1) it is difficult to separate out the effects of parental socioeconomic status and child IQ and that (2) high IQ children are almost as likely to show the crudest and most extreme forms of adult maladjustment (e.g. psychosis, suicide) as are average IQ children. Furthermore, high IQ seems to predict better to extremely good adjustment than low IQ predicts to extremely poor adjustment.

Summary. Though there does appear to be some positive relation between IQ and adjustment, it may be due to a configuration of variables rather than to IQ per se. We know that IQ and socioeconomic status are related, although we do not know the mechanism. The evidence reviewed in the section concerned with stability and change in IQ indicated that IQ may change and remain changed (e.g., Skeels and Skodak), given a permanent change in environments. This seems to indicate that environmental circumstances play a major role in the stability or change of IQ.

Mental Retardation

Mental retardation is a particularly difficult condition from which to predict specific adult outcomes. One problem is that of definition. There are a number of classification schemes, and depending on how one classifies retardation it may be a more or less serious problem. Another problem is that of diagnosis. The classic testing instrument for the detection of regardation is the IQ test. But IQ tests are unreliable, and prone to bias in favor or urban, middle-American norms of knowledge and test-taking behavior. There is a reasonable basis for belief that today poor children, minority children, bilingual children, and rural children from such areas as Appalachia, may be overdiagnosed as retarded. We have never achieved "culture-free" IQ testing. Still a third problem is that of the self-fulfilling prophecy. Often, the diagnosis of retardation is followed by a decision about the child in favor of institutionalization, assignment to special classes, or other special treatment in school. If and when later effects of the retardation occur, it is possible that these effects may have been created or enhanced by the special treatment of the child. Mental retardation has been defined in a variety of ways, based upon varying conceptions of the nature and stability of intelligence. Most current legal and administrative guidelines specify an IQ of 70 as the upper limit of the mentally retarded range (Robinson and Robinson, 1970). Using a cutoff point of IQ 70, approximately 3% of the population of the United States (or 5.4 million people) would be regarded as retarded (Scheerenberger, 1964). However, this estimate can be considered minimal--especially if the 1959 definition of mental retardation advanced by the American Association on Mental Deficiency (Heber, 1959) is taken seriously. In this definition, "mental retardation refers to subaverage general intellectual functioning which originates during the developmental period and is associated with impairment in adaptive behavior" (Heber, 1961, p. 3). Performance of one standard deviation or more below the population mean on a test of general intelligence is considered to be 'subaverage general intellectual functioning'. Thus if only this component of the AAMD definition is used, a large number of "borderline" mentally retarded would now be included. Robinson and Robinson point out that about one person in six would be regarded as retarded, is the AAMD definition is applied. Previous standards would single out one in 33.

However, a second crucial component of the AAMD definition concerns impairment in adaptive behavior. Adaptive behavior "is a composite of many aspects of behavior and a function of a wide range of specific abilities and disabilities. Intellectual, affective, motivational, social, sensory and motor factors all contribute to, and are a part of total adaptation" (Heber, 1962, p. 76). The AAMD manual states that impaired adaptive behavior may be reflected in (1) maturation, learning, and social adjustment or the rate at which an individual develops his basic motor and self-care skills; (2) learning, or the ability with which an individual gains knowledge from his experiences; and/or (3) social adjustment, or the ability with which the individual is capable of independently sustaining himself in a manner consistent with the standards and requirements of his society. Unfortunately, it is not easy to tell when the criterion of "impaired adaptive behavior" is being met, since no standardized classification of behavioral characteristics has been developed. As Scheerenberger (1964) states, "at present, our lack of knowledge concerning the essential components of adaptive behavior and the sequence of their development prevents the formulation of behavioral classifications capable of rendering reliable, sophisticated information".

Nevertheless, adaptive behavior must be included in the definition of mental retardation to point up its cultural or societal context; except at the extreme, retardation is relative to societal standards. Maher (1963) states this consideration as follows:

> What constitutes mentally retarded behavior depends to a large extent upon the society which happens to be making the judgement. An individual who does not create a problem for others in his social environment and who manages to become self-supporting is usually not defined as mentally retarded no matter what his test IQ may be. Mental retardation is primarily a socially defined phenomenon, and it is in large part meaningless to speak of mental retardation without this criterion in mind. (p. 238)

Classification. A wide variety of classification systems for the mentally retarded exist. Scheerenberger (1964) describes three interrelated systems which are based on degree of retardation, educability, and adaptive behavior.

Systems based on severity of retardation generally divide the quantitative scale of IQ points into segments on the basis of standard deviations or a specified number of IQ points. The AAMD manual lists five levels of mental retardation; each includes a range of one standard deviation on the normal curve. Table 4.19 lists the five levels, their corresponding IQ ranges and proportions, and some gross characteristics of individuals at each level with respect to expected adult status. It must be emphasized that, according to the AAMD definition, the borderline cases would be considered "retarded" only if adaptive behavior was impaired.

Three broad educational categories comprise the classification system based on educability. The three categories are educable mentally retarded (EMR), trainable mentally retarded (TMR), and uneducable (SMR). Table 4.20 defines these categories (Kirk, 1962).

The third classification scheme reported by Scheerenberger (1964) is based on adaptive behavior. Scheerenberger points out that the IQ

> or the equivalent MA, is of minimal value in understanding the child's interests, cultural experiences, motivation, motor skills, personality characteristics, and potentialities for social and vocational adequacy. Furthermore, individuals with identical CAs and IQs do not possess identical potentials for learning or adjustment. (p. 13)

TABLE 4.19

The Five Levels of Retardation*
AAMD Classification System

Type	Binet IQ	Proportion	Adult Status
Borderline	68-83	More than other levels combined	With proper training and job opportunity, achieve social and vocational adequacy but with low SES.
Mild	52-67	90% (excluding borderline)	Usually can handle unskilled labor, but may need supervision in managing social and financial affairs; only 1% in U.S. are institutionalized.
Moderate	36-51	6% (excluding borderline)	Usually live dependently within a family setting; few hold jobs except in sheltered workshops or family businesses; a "sizable proportion" are institutionalized.
Severe	20-35	3 1/2% (excluding borderline)	Often institutionalized; those remaining within family setting require constant supervision.
Profound	below 20	1 1/2% (excluding borderline)	Total supervision required, with little learning of any kind.

*Adapted from Robinson and Robinson, 1970.

TABLE 4.20

Three Categories of Mental Retardation
Based on Educability (Kirk, 1962)

Category	Definition	IQ Range
Educable mentally retarded	(1) Minimum educability in academic subjects of school (2) Social adjustment sufficient for independence in community (3) Minimum occupational adequacy which enables partial or total self-support as an adult	50-80
Trainable mentally retarded	Not capable of learning in classes for EMR but has potentialities for learning (1) self care, (2) adjustment to home and neighborhood, and (3) economic usefulness in home, sheltered workshop, or institution	20-49
Uneducable (SMR)	Not capable of formal training	< 20

Sloan and Birch (1955) developed a scheme for analyzing functional behavior that uses degree of debility and chronological age (Table 4.21).

Zigler (1966) has argued convincingly for the value of a "two-group approach" to mental retardation, a classification system based on etiology. One group of retardates have known physiological defects. Mental retardation in such cases may result from a single recessive gene (e.g., gargoylism); a dominant gene (e.g., epiloia); phenylketonuria; amaurotic idiocy; infections (e.g., congenital syphilis); chromosomal defects (e.g., mongolism); toxic agents (e.g., lead poisoning); and cerebral trauma (see Heber, 1959). The second group is composed of individuals who have no identifiable physiological defects and is labeled "familial" or "undifferentiated." Zigler posits that this latter group of retardates simply represent the lower end of the normal distribution of intelligence.

> Considerable clarity could be brought to the area of mental retardation if we were to do away with the practice of conceptualizing the intelligence distribution as a single continuous normal curve. Perhaps a more appropriate representation is to depict the intelligence of the bulk of the population, including the familial retarded, as a normal distribution having a mean of 100 with lower and upper limits of approximately 50 and 150, respectively. Superimposed on this curve would be a second somewhat normal distribution having a mean of approximately 35 and a range from zero to 70. The first curve would represent the polygenic distribution of intelligence; the second would represent all those individuals whose intellectual functioning reflected factors other than the normal polygenic expression, i.e., those retardates for whom there is an identifiable physiological defect. (p. 123)

More severe grades of mental defect are often associated with the presence of one or more organic disorders (Lapouse and Weitzner, 1970). For example, Table 4.22 presents data on first admissions to New York State schools for the mentally retarded. The table indicates a decrease in the proportion of organic defectives with an increase in IQ.

The distinction between cultural-familial and organic retardates has been supported by Dingman and Tarjan (1960), Lewis (1933), Penrose (1963), and Roberts (1952). This distinction also has potential importance for prediction of the later functioning of the retardate. Lapouse and Weitzner (1970) report a study by Stein andSusser (1967) which found different IQ changes for retardates with identifiable physiological defects and those with none. They compared the test-retest scores of 46 young adults who had been diagnosed as educationally subnormal 10 years earlier. The Terman-Merill Scale had been used for initial testing and the Wechsler Adult Intelligence Scale for retesting. The subjects who had been found clinically normal but educationally subnormal gained 8.3 IQ points during the ten-year period, probably because of regression towards the mean, while the subjects diagnosed as having brain disorders showed a decrement of 1.2 points. This

TABLE 4.21

Levels of Adaptive Behavior

	Preschool Age 0-5 Maturation and Development	School-Age 6-21 Training and Education	Adult 21 Social and Vocational Adequacy
LEVEL--IV (PROFOUND)	Gross retardation; minimal capacity for functioning in sensori-motor areas; needs nursing care.	Some motor development present; cannot profit from training in self-help; needs total care.	Some motor and speech development; totally incapable of self-maintenance; needs complete care and supervision.
LEVEL--III (SEVERE)	Poor motor development; speech is minimal; generally unable to profit from training in self-help; little or no communication skills.	Can talk or learn to communicate; can be trained in elemental health habits; cannot learn functional academic skills; profits from systematic habit training. ("Trainable")	Can contribute partially to self-support under complete supervision; can develop self-protection skills to a minimal useful level in controlled environment.
LEVEL--II (MODERATE)	Can talk or learn to communicate; poor social awareness; fair motor development; may profit from self-help; can be managed with moderate supervision.	Can learn functional academic skills to approximately 4th grade level by late teens if given special education. ("Educable")	Capable of self-maintenance in unskilled or semi-skilled occupations; needs supervision and guidance when under mild social or economic stress.
LEVEL--I (MILD)	Can develop social and communication skills; minimal retardation in sensori-motor areas; rarely distinguished from normal until later age.	Can learn academic skills to approximately 6th grade level by late teens. Cannot learn general high school subjects. Needs special education particularly at secondary school age levels. ("Educable")	Capable of social and vocational adequacy with proper education and training. Frequently needs supervision and guidance under serious social or economic stress.

Source: Sloan and Birch (1955, p. 262).

TABLE 4.22

Distribution of First Admissions by Severity of Subnormality and Presence of Organic Condition in New York State Schools for Mentally Retarded for Year Ended March 31, 1957*

Diagnosis	Total	Idiot (20 or 25)	Imbecile (20 or 25-49)	Moron (50-70 or 75)	Other
Organic**	655.0	291.0	269.0	93.0	2.0
Other***	835.0	90.0	275.0	464.0	6.0
Total	1490.0	381.0	544.0	557.0	8.0
Proportion Organic	44.0	76.4	49.4	16.7	25.0

* Taken from Lapouse and Weitzner, 1970

** Diagnosis: Mongolism, with developmental cranial anomalies, with congenital cerebral spastic infantile paralysis, post-infectional, post-traumatic, with epilepsy, with endocrine disorder, familial amaurosis, with tuberous sclerosis, with other organic nervous disease.

*** Diagnosis: familial, indifferentiated, other forms.

study suggests "that a more favorable outcome of earlier mental subnormality is more likely to occur when no clinical evidence of brain disorder is present." Though it seems reasonable that organic defects may set definite limits on the growth of cognition, we still have much to learn about the extent to which the IQ of retardates labeled "cultural-familial" can be altered.

Incidence. As mentioned earlier, an estimated 5.4 million people are currently diagnosed as being mentally retarded. The President's Panel on Mental Retardation (1962) reported that "mental retardation ranks as a major national health, social, and economic problem. It afflicts twice as many individuals as blindness, polio, cerebral palsy, and rheumatic heart disease combined" (p. 1).

Most of the retarded population are only mildly handicapped. The incidence of the various types reported in the President's Panel is presented below:

TABLE 4.23

Incidence of Mental Retardation According to Degree of Retardation (Total Population, 180 million)

Degree	Total Incidence (Percent)	Percentage of Mental Retardation	Estimated Population in the U.S.
Mild	2.6	86.7	4,680,000
Moderate	.3	10.0	540,000
Severe	.1	3.3	180,000
Total	3.0	100.0	5,400,000

The incidence of mental retardation is not homogeneous across socioeconomic groups and geographic regions. In their review of the epidimiological literature, Lapouse and Weitzner (1970) report:

> The studies reviewed in this paper indicate the association of high-prevalence rates for mental defect with low social-class position and with its concomitants, including low occupational status, large family size, nonwhite race, poor quality homes and crowding, and subnormal height and weight. Such conditions are inseparably associated with other disadvantageous conditions of life such as poor schools and limited educational and occupational opportunities, family disorganization, improper nutrition, inadequate health facilities, and unemployment. (p. 218)

The incidence of mental retardation also appears to vary with age. During infancy and early childhood, the reported incidence is fairly low. Scheerenberger (1964) hypothesizes that during this time mild retardation is probably not apparent because the children are capable of meeting the demands of preschool life. Only the moderately and severely retarded would be identified before school age.

The school years constitute the period during which most mild or borderline retardates are identified. There is an initial spurt in the primary school years, and a marked increase during adolescence, "probably due to an interplay of factors including more complex learning tasks in school, the greater foresight and control required by society, and physical maturity, which is upsetting both to the child himself and to adults who grow apprehensive about possible sexual and aggressive misbehavior." (Robinson and Robinson, 1970, p. 619)

Increased identification in adolescence is followed by a sharp drop in the late teens which extends into adulthood. There is some evidence that during adulthood, the more mildly handicapped are able to adjust adequately and maintain themselves within society (Charles, 1957; Collmann and Newlyn, 1956, 1957; Kennedy, 1948); we will review this evidence in more detail. On the contrary, individuals with IQ's below 50 are not able to independently maintain themselves in a normal societal setting; they require sheltered working situations and/or institutionalization.

Motivational and emotional factors. The retardate differs from the normal child in IQ by definition. However, the behavior of the retarded child is not simply a product of his low IQ. Zigler (1966) points out "that many of the reported differences between regardates and normals of the same MA are a result of motivational and emotional differences which reflect differences in environmental histories, and are not a function of innate deficiencies" (pp. 145-146). Zigler and his colleagues have been investigating the motivational characteristics of the retarded for some years (see Zigler, 1966, for a review to that date). The retarded appear to have higher anxiety levels than normals. Institutionalization appears to foster a heightened motivation to interact with a supportive adult, while at the same time fostering a reluctance and wariness to do so. "The high incidence of failure experienced by retardates generates a cognitive style of problem-solving characterized by outer-directedness" (Zigler, 1966, p. 154), and the retardate appears to be motivated by different needs than the normal child. All of these nonintellective factors would be expected to influence the performance of the child--both on experimental tasks and in daily life.

Effects of Labeling and Misclassification. In 1970, a "Task Force on Children Out of School" published a study of the exclusion of children from the Boston public school system. Included was the study of a group of children in "special classes, isolated from their peers, and often excluded from normal school activities" (p. 37). These were the children labeled mentally retarded. The problems emphasized by the Task Force included both (1) the number of children identified as mentally retarded and (2) the treatment of those who were placed in special classes.

One would expect to find about 1500 retarded children in a school system the size of Boston's. However, the number of children identified as retarded by the Department of Special Classes approaches 4000. As Bindman, the Regional Administrator for Retardation of the State Department of Mental Health noted: "It's obvious that they've got a lot of kids who aren't retarded at all. They have taken kids with a lot of different needs and lumped them all together in these 'special classes' "(Task Force on Children Out of School, 1970, . 38). At the request of parents, Hurwitz of the Judge Baker Guidance Clinic and some of his colleagues examined a group of 21 children who had been labeled mentally retarded. Hurwitz reported in testimony before the task force:

> The result of our findings indicates over half of the children (labelled as retarded) had IQ's in the normal range. Some had evidence of perceptual-motor handicaps. Some were emotionally disturbed. These children occupy a peculiar position in the school society. They know they are considered 'bad', the 'dumb ones', the ones nobody wants...These children are even denied access to certain activities such as field trips and physical education. (p. 38)

The process by which children are placed in special classes appears to leave much room for error. Children who have trouble learning are tested; and if their IQ score is below 79, they are placed in special classes. The Task Force points out that the limit of 79 is higher than in other states, which use either 75 or 70. However, the main point is that an IQ test is insufficient for diagnosing mental retardation. A complete diagnostic evaluation is needed. The child may have poor eyesight, poor hearing, perceptual-motor handicaps, or emotional disturbances. Or, he may simply not be motivated to perform adequately on that test at that time.

Another telling point is the higher proportion of boys than girls in special classes, although the incidence of mental retardation is the same for both sexes. One criterion for placing a child in a special class appears to be whether he "acts up". Furthermore, although a state law requires an annual test of each mentally retarded child (in order to identify changing educational needs), most special class children are not tested this frequently. "The consequence of this practice is that placement in a 'special class' becomes a relatively permanent thing, instead of a temporary measure." (p. 42)

What type of training takes place in special classes? The consensus among those who observed the special classes in Boston was that education is much poorer there than in regular classes. For example, no child in a special class, nor any child whose IQ score is under 90, is eligible for remedial reading instruction. There is no planned program of physical education, and a number of pupil personnel services (e.g., routine screening for speech and hearing) are denied these children. Field trips and classes in art and music are not offered to special class children, and many do not eat with the other school children.

Guskin and Spicker (1968) have summarized the effect of special classes on social adjustment. They conclude:

> Although special classes have been widely recommended as a way of reducing the poor personal and social adjustment of the educable retarded, it can be seen that there is little definitive evidence either that these children are seriously maladjusted outside of special classes or that special classes have a consistently favorable effect on adjustment of the retarded. (p. 251)

Adult status of the "mild" and "borderline" mentally retarded. Conclusions about the adult status of the retardate are limited because of the nature of the studies done. Those completed before 1960 tend to be more optimistic than those done after 1960. Heber and Dever (1970) have pointed out the two main weaknesses in studies of effectiveness of education and rehabilitation programs: "(a) there is a lack of knowledge about adult retardates who have not been treated as retarded persons; (b) almost all studies in this area have been retrospective in character" (p. 396). In addition, the various studies on the topic have differed in (1) the type of information obtained; (2) time factors (e.g., age institutionalized, age released, time since released); (3) definitions of "adjustment"; and (4) sampling procedures. The typical approach of studies of the adult status of the retarded is to trace individuals through time in order to gain information on such variables as occupational status, marital status, income, police records, etc. This approach was stimulated by an early study by Fernald (1919), who originated the line of research in the United States which indicates that the retarded can become self-supporting members of our society. Goldstein (1964) and Windle (1962) review and critique this line of research. In general, the studies of the mentally retarded who have been institutionalized and then go out into the community indicate that:

(1) A substantial proportion of retardates with IQ's above 50 obtain employment of an unskilled nature;
(2) Job success is apparently more closely related to personality and attitudinal characteristics than to IQ;
(3) There is little indication that repetitive, boring tasks are especially appropriate for the retarded;
(4) Deficiencies are present in manual dexterity as well as in mental dexterity;
(5) Adequate job adjustment is more likely attained in the late 20's than in the teens;
(6) Close family or professional supervision is better than no supervision;
(7) Retardates participate less in civic, social and recreational activities than do normals, they require more social services, and they evidence more minor legal infractions; and
(8) Their "success" is more influenced by economic recessions than is the success of normals. (Summarized by Heber and Dever, 1970, pp. 397-398).

On the whole, these findings are relatively positive.

Studies of the adjustment of the retarded who have participated in special classes (rather than being institutionalized) report similar findings. Goldstein (1964) reviewed these studies and formulated four main conclusions:

(1) As adults, most of the mildly retarded adjust to their communities;
(2) Economic conditions have a determining influence on the retarded's acquisition of material assets, such as homes;
(3) Economic depressions are especially hard on the retarded;
(4) Retarded persons tend to hold jobs on the lower end of the occupational scale.

These conclusions for the retardate who has attended special classes are similar to the conclusions for the retardate who has been institutionalized. In general, both sets of conclusions are based on studies conducted before 1960. Unfortunately, more recent studies indicate they may have been overly optimistic about the adult status of the retardate.

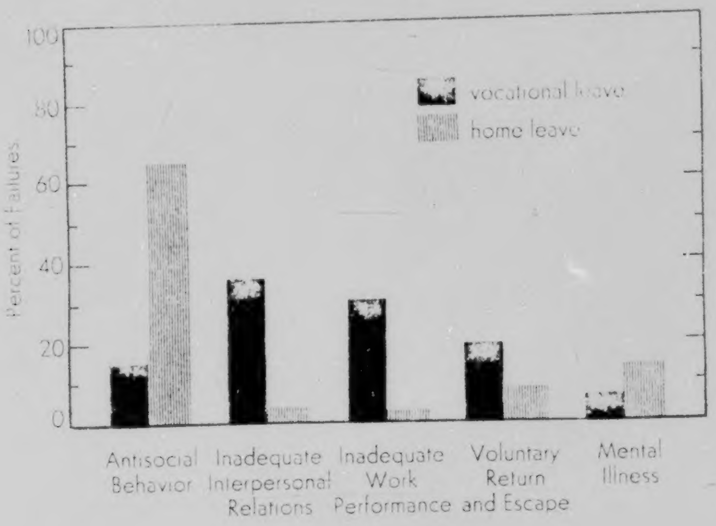
Windle (1962) has conducted follow-up studies on discharged institution residents. Windle (1962) attempted to discover why some patients returned to the institution rather than staying in the community to which they had been released. The four groups were comprised of patients on (1) vocational leave, (2) home leave, (3) home care, and (4) unauthorized absence. 211 of a total of 356 patients returned to the institution within four years of discharge. All of the groups except the home care group, who were moderately retarded, fell within the range of mild retardation. Before discharge, the vocational and home leave patients had been selected for their ability to cope with the world outside the institution. Deleting from consideration the home care group and the unauthorized group (most of whom were brought back to the institution), we find that 60% of the other two groups returned to the institution within a two year period.

Windle found that patients' actions accounted for over 80% of the returns. Figure 4.24 depicts the percent of failures determined by various types of patient actions. The home leave patients failed "outside" primarily due to antisocial behavior (crimes, minor antisocial actions, sexual misbehavior, etc.). The vocational leave patients returned more frequently for inadequate work performance, and voluntarily.

Edgerton (1967) then studied 48 individuals discharged from the same institution who were able to remain in the community. This group had already had several tries in the community, and had been finally released as "successfully rehabilitated". Their mean IQ was 65, and their mean age was 35 years. Considering that these individuals were definitely considered capable of coping with the outside world, Edgerton's findings seem incongruent with the previous positive conclusions. The discharged retardates resided in slum areas, in the most dilapidated residences. They had substantial debts, little job security, and few marketable skills. Furthermore, their "success" seemed to depend upon benefactors, who helped them maintain their ability to cope, their self-concept, and their ability to pass for normal. Indeed, Edgerton concluded that only three of the 48 were truly independent, while 20 would probably have immediately returned to the institution without their benefactors. In sum, the individuals were generally found at the lower end of the social and economic scales, and they were relatively dependent on benefactors.

FIGURE 4.24

Types of Patient Actions Which Resulted in the Failure of Vocational and Home Leave Patients from Pacific State Hospital



(Taken from Heber and Dever, 1970, who adapted from Windle, 1962)

Studies conducted since 1960 indicate that graduates of special classes for the retarded do not fare much better. Dinger (1961) and Peterson and Smith (1960) have considered the incomes of such adults. Dinger (1961) found that 82% of 100 former special class students were self-supporting. However, 40% earned less than $3000 annually, and 51% earned between $2000 and $3999. The mean income was $3327. Peterson and Smith (1960) compared the income of individuals from special classes with normals from a low SES background who had attended school at the same time as the retarded. Whereas normals held mainly clerical, semi-skilled, or skilled jobs, the retarded held jobs in unskilled and service occupations. The median incomes for males and females within both retarded and normal groups are presented below.

Median Annual Income

	Retarded	Normal
Male	$2837	$4644
Female	$1002	$2860

Other studies (Baller, 1936; Baller, Charles, and Miller, 1967; Charles, 1953; Miller, 1965), while not reporting incomes, indicate that around 30% of the retarded who attended special classes need economic assistance as adults. Baller, Charles, and Miller (1967) reported the results of a study of retardates over a 30-year period. The subjects, in their middle 50's at the time of follow-up, were first studied in 1935. There were three groups of individuals: (1) Low Group: those with IQ's below 70 in 1935; IQ's ranged from 42-70 with a mean of 60; (2) Middle Group: those with IQ's between 75 and 85, with a mean of 80; and (3) High Group: a control group of average IQ. All three groups were matched on age, sex, nationality, background, and length of school-age residence in the town. Thirty years after initial contact, the investigators found that more than 65% of the low group had remained in or returned to their home community, whereas about 40% of the other groups were found in their home community. Baller et al. summarized the economic status of the three groups:

> Although unemployment and dependence on public support was somewhat higher for Low Group subjects than the national average, they had shown steady improvement in self-support over the years. In 1935 only 27 per cent were found to be fully self-supporting and 57 per cent more partially self-supporting. By 1950 the figures on complete self-support had risen to 36 per cent. By the time of the current study, self-support had risen to 67 per cent with another 16 per cent needing only some relief help to get along. Nearly 80 per cent of the group was described as usually employed and half had been continuously employed at the same job for some years. Most jobs were in the labor and service category, but there were some in the higher occupational ranks.

> Middle and High Group subjects were almost all self-supporting. Jobs of the Middle Group resembled those of of the Low Group, while High Group subjects had a much greater proportion of professional and business level jobs with few labor and service listings. (p. 310)

From these data one might conclude with increasing age, the mentally retarded were better able to support themselves. However, it should be noted that the Low Group had a very high death rate; almost one-third of all located subjects had died. It is conceivable that those least able were those who died, thus altering the proportion of the living retarded who were unable to maintain self-support.

Skaarbrevik (1971) recently reported the results of a follow-up study of mental retardates in Norway. He obtained information on 174 individuals who had been discharged from a vocational training school seven years earlier. The mean IQ's of the 124 males were 64.6; the mean IQ of the 50 females was 61.6. At the time of follow-up, the individuals were about 26 years old. Approximately one-half of the sample were self-supporting with an income at least equal to one-half of the average national income. Skaarbrevik considers this to be an adequate standard of living. Table 4.25 gives the percent of males and females who were self-supporting with good and low standards of living and the percent of those who did not support themselves. When income was compared to the national average for the comparable occupational group, it was found that the retardates earned considerably less than the average worker in his occupation. Skaarbrevik emphasized that in an increasingly complex society, it is more difficult for the mentally retarded to find work.

Abizu et al.'s (1966) study of mental retardation in Puerto Rico is the one study to date concerning the life status of retardates not previously identified as retarded. This study had other unique features: (1) six different types of communities were used--peasant, plantation, urban slum, urban, urban lower and middle class, and urban middle and upper class; and (2) successful and unsuccessful retardates were compared with both successful and unsuccesful normals. Within each type of community, adults between the ages of 23 and 49 were designated as either retarded (IQ less than 70) or nonretarded (IQ greater than 70). The "successful" individuals were considered to be those whose income was in the highest 80%, while the "unsuccessful" were those whose income was in the lowest 20% of the community. By the IQ definition 30% of the total sample was found to be retarded, but by the "success" definition only 7.3 were unsuccessful. (Only males are considered in this discussion; the 'housewife' classification does not allow designations of success and failure).

Overall, more retardates than normals were unsuccessful, with about 30% of the retardates and slightly under 20% of the normals falling into the lowest 20% income bracket. As social class and community complexity increased, the percentage of retarded individuals decreased, but the percentage of the retarded group who were unsuccessful increased. (See Figures 4.26 and 4.27). IQ was related to income; in general, the lower

TABLE 4.25

Abilities for Self-Support, Based Upon Economic and Social Information

	Percent		
	Male	Female	Total
Self-supporting with good standard of living[a]	50.8	44.4	48.8
Self-supporting with low standard of living[b]	26.6	22.2	25.0
Supported by others[c]	21.3	29.6	23.5

[a] As defined by local social agencies; in addition, earned as much or more than one-half of the average income in their country.

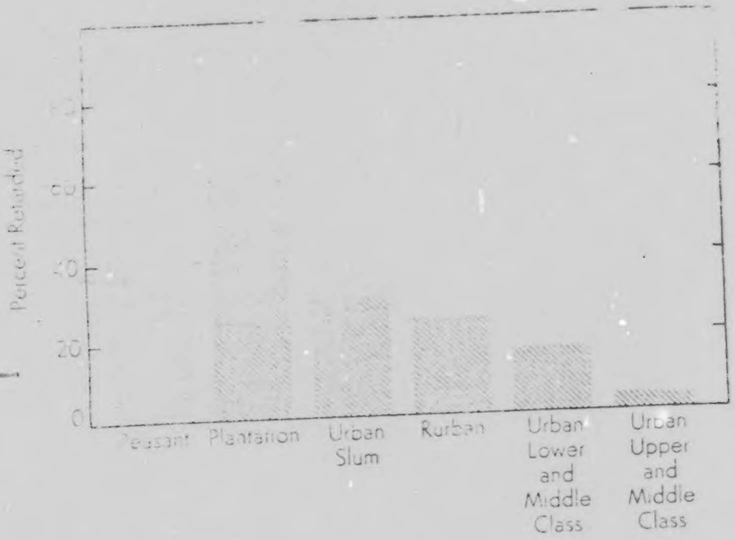
[b] As defined by the local social agencies; in addition, earned less than one-half of the average income in their country.

[c] In most cases, these subjects received disability insurance from the government.

Taken from Skaarbrevik, 1971, p. 562.

FIGURE 4.26

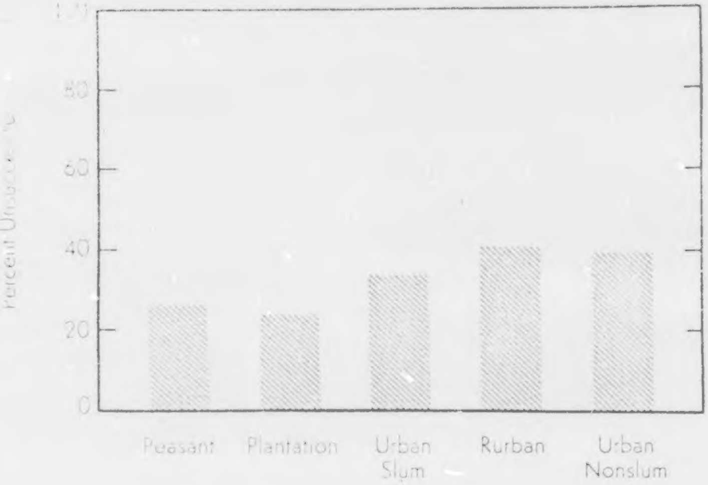
Percent of Retardates by Community Type in Puerto Rico



(Taken from Heber and Dever, 1970, p. 408, who adapted from Albizu-Miranda et al., 1966)

FIGURE 4.27

Percent of Unsuccessful Retardates
by Community Type in Puerto Rico



(Taken from Heber and Dever,
1970, p. 409, who adapted
from Albizu-Miranda et al.,
1966)

the IQ the more likely the retardate was to be unsuccessful. Also the more complex the community, the more difficult it was for retardates of any IQ level to be successful. Figure 4.28 presents the average annual income of successful and unsuccessful normals and retardates in each community setting. Although the income of the retarded increased somewhat as the community became more complex, their incomes did not increase as much as that of the normals. Thus, relatively, the position of the retardate was worse in the more complex societies.

Heber and Dever (1970) summarize the adult status of the mildly retarded in our society:

> The picture portrayed by recent analyses of the status of graduates of special classes, as well as of persons discharged from institutions, is not a bright one at all. They appear to be at the lowest points on the scales of social and occupational adjustment. They do not, as so often is stated, adjust as well in adult life as do their nonretarded age peers who live in comparable neighborhoods. It should also be pointed out that even within 'slum' tracts standards vary. Within such tracts it appears that those who are retarded may occupy the worst of the housing and be recipients of the lowest incomes represented. (pp. 404-405)

They posit that the optimistic ring of the earlier studies may have been accurate at that time. In the early 1900's the retardate was released from the institution or from special classes to take his place in a largely rural society. Now the retardate is released into a much more complex society.

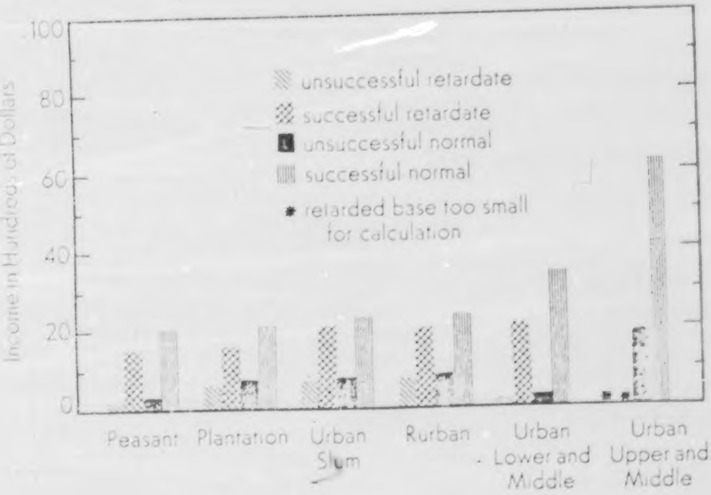
Ginzberg (1965) also argues this point. He attributes the increasing rates of rejection from the Armed Services for intellectual or educational deficiencies to the higher level of skill required to handle more complex equipment and social structures. During World War II the mean rejection rate was 40 per 1000 men. At that time, the criterion for acceptance was an ability to read or write at the fifth grade level. By 1962, however, the Armed Services were rejecting about one-third of all 18 year olds. The requirement for acceptance at this time was a ninth-grade educational level; about half of those rejected for mental defects could not meet the requirement.

In civilian life, too, much more is required of the individual today.

> Historically the farm could absorb people with a great range of competence because it provided opportunities for a variety of tasks differing in amounts of skill and energy expenditures required. For example, a person who is sufficiently unbalanced emotionally, or not quite coordinated enough to remember to always button his trousers, creates no problem on a farm.

FIGURE 4.28

Average Annual Income for Puerto Rican Males
According to Community Type, Presence of Retardation, and Success



(Taken from Heber and Dever,
1970, p. 409, who adapted
from Albizu-Miranda et al.,
1966)

> But such a man cannot live in the city. The police would pick him up. An urban civilization makes demands for conformity and certain minimum standards. The farm is a wonderful place to absorb people of lesser competence and to fit them into the economy. (Ginzberg, 1965, p. 7)

Because of technological advances, simple jobs have drastically decreased in number with corresponding decreases in the amount of unskilled labor needed. Ginzberg goes on:

> The nature of an affluence society, its income levels, the capital equipment that it works with, all make it increasingly difficult to absorb labor of modest skills. The fact that we tend to work in very large organizations, which make not only intellectual demands but all sorts of social demands, requires that we learn how to adjust to a large number of different supervisors, colleagues, and fellow workers. (Ginzberg, 1965, p. 7-8)

Prediction of Adult Adjustment. But can we predict which retarded individuals will be "successful" vocationally and socially? Cobb (1967) reviewed the efforts to predict the ability of the retarded to adjust and become socially independent. He points out that "adjustment" and "success" are extremely broad notions, and both can be described on a wide range of variables, e.g., social mobility, residence, mortality, marital status, economic status, conformity to laws, citizenship, and social participation. Stephens (1964) gave a questionnaire containing questions on 141 criterion variables of successful adult adjustment to 125 young adult retarded males. When he factor analyzed the responses, 17 primary factors were identified--factors not previously obvious. Cobb considers Stephen's work to be a step in the direction of clear definitions of success and failure.

Cobb reanalyzed information reported earlier by Bower (1962) on the characteristics of mildly retarded adults in Connecticut. He developed a six-fold classification of vocational success: (1) success at a complex competitive job level, (2) success at a simple competitive job level, (3) failure at competitive job, (4) success at sheltered job, (5) failure at sheltered job, and (6) never worked. A factor analysis of 21 predictor variables yielded six factors, roughly labeled intellectual achievement, personality maladjustment, perceptual intelligence, social intelligence, adult inadequacy, and emotional constriction. A multiple discriminant analysis of the six groups on vocational success on the predictor factors yielded a separation of the groups. Social intelligence (Vineland Social Maturity Scale and Stanford-Binet Vocabulary raw score) and personality maladjustment (heavily weighed by responses to Rorschach cards) contributed most to the discrimination. Although the studies of Cobb, Bower and Stephens do provide some information, we are still far from being able to determine which retardates will be successful.

Cobb sums up the current "state of the art" in this way:

> In the past two decades, literally hundreds of studies have attempted to identify and measure the predictors of successful outcome in retarded persons. But, unfortunately, we are as yet unable to use this empirical information in any precise way in guiding our practice. We are unable to say, with respect to the individual retarded person, what the precise probabilities are of any specific outcome of any specific program of treatment....
>
> The reasons for our present unsatisfactory situation are numerous and will not be reviewed here in detail. Certainly we have learned that the IQ, far from being the magic key to prognosis, is of relatively little importance in determing adult social adjustments except within the broadest of limits. We have learned also that adult life for the retarded has many facets of success and failure, all of them determined by a multitude of factors....
>
> The research concerned with these problems has suffered from a gross over-simplification of the nature of success, on the one hand, and from a proliferation of fragmented studies of isolated predictors, on the other. There has, in addition, been an almost complete failure on the part of the investigators either to relate their predictive studies to a coherent theory of human development and learning, or to cross validate their own findings. (p. 314)

Summary. The picture of the retarded that emerged from studies conducted during the first 50 years of this century was one of relatively good adjustment in the community, primarily unskilled employment, and a greater vulnerability than the normal individual to depressed economic conditions. In general, the life chances of the retardate were regarded as fairly positive. More recent studies, however, have suggested that the conditions of the mildly retarded are somewhat more marginal. For example, Edgerton (1967) found his sample of "successfully rehabilitated" retardates were functioning at, basically, the lowest SES level possible to still be considered self-supporting. And a majority were still quite dependent psychologically upon someone else. Other studies have found income of the self-supporting retardate to be quite low, and in Norway the retardate earned less than the average worker in his occupation. We might expect the situation to be similar in the United States.

Retardation is not a pure condition or discrete diagnostic condition. It seems reasonable to believe with Zigler that, if we exclude organically-based retardation, most mental retardation simply represents a label applied to individuals who fall below some arbitrary point on a continuous normal curve of the distribution of IQ. Familial retardates are actually people with relatively less mental ability.

The ultimate adjustment of the individual with low IQ appears to depend upon a number of other factors in the individual but, as yet, no scheme has been developed for singling out those more or less likely to make a later adjustment.

Outcome Variables

Juvenile delinquency, school failure, income, and occupational success are the four outcome variables we consider in this segment. In the juvenile delinquency section we consider a number of hypotheses about the relationship of delinquency to factors of early childhood. Some follow-up data are presented for the outcome of school failure. Ideally, predictor variables discussed previously should have been followed-up using income and occupational success as outcome variables. However, few such data exist. In the previous discussion of IQ and mental retardation as predictor variables, some follow-up data relevant to adult income and occupational status were given; it will not be repeated in any detail here. In general, a relationship was found between IQ and family SES in adolescence and the outcome variables of education and occupational success (Bayley, 1968; Havighurst et al., 1962; Terman and Oden, 1959). Here we discuss the concurrent relationship between an individual's education and his income, the relationship between family income and the child's educational attainment, and various factors relating to occupational success.

Juvenile Delinquency

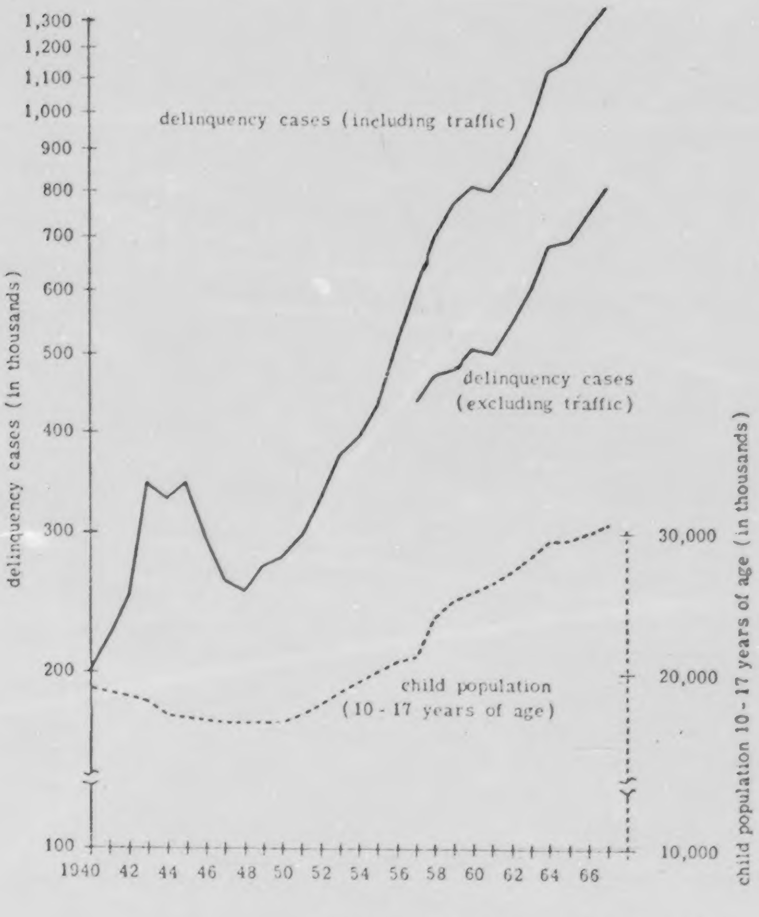
Juvenile acts of delinquency make up a large proportion of the total criminal activity in our society. We can form a minimal and rough estimate of the prevalence of juvenile delinquency from arrest records. The estimate must be minimal and rough because arrests cover only a fraction of the acts of delinquency that are committed, and, as will be discussed below, arrest records can give a somewhat biased picture of the distribution of delinquency among children of different social and economic strata.

Statistics for the United States show that, in 1967, there were 26.4 juvenile delinquency court cases per 1,000 children aged 10-17, a total of 811,000. Furthermore, this rate has been rising despite large increases in the child population (Figure 4.29). Since 1940, juvenile arrests have increased 100%, non-juvenile arrests about 50%. (Children's Bureau, 1969; Lunden, 1964).

Identification. Because delinquency is important, and because one can identify many of the individuals and acts that make up this social problem with some precision, there has been a long history of research on delinquency. The various statistical, psychological, medical and sociological studies of delinquency have explored its nature and causes. Inevitably, there has been much interest in the earlier childhood of the delinquent as people have tried to identify these special children or groups of children who are likely to become delinquent.

FIGURE 4.29

Trend in Juvenile Court Delinquency Cases and Child Population 10 - 17 Years of Age, 1940 - 1967 (semi-logarithmic scale)



Children's Bureau, 1969, p. 8

There is a rather important assumption underlying all of this research. It is easiest to understand if we consider adolescence as a network of intersecting, joining, branching, and occasionally congruent paths, with various origins corresponding to biological birth and prenatal conditions and various outcomes corresponding to whatever we are examining. The path that a mature child follows will be governed by many factors, some beyond his control, others within it. The assumption then is this: Delinquency is the outcome of a path that is both identifiable within a useful probability range several years before the actual delinquent acts occur. "Path", of course, refers to a certain sequence of branch choices; since the identification must only carry a probability, the assumption allows for less than absolute prediction.

In attempting to develop a strategy to divert prospective delinquents away from delinquency, there are several points in the path thereto and its feeders which are known and at which intervention might be appropriate. In each case, presence of the characteristic represents staying on the path:

hyperactivity, overreaction, or reading impairments in the child (Stevens and Wehrhein, 1969);

unsuitable family affection/discipline patterns (Glueck's work; Schechter, 1966);

inability to handle loneliness/need for intense stimuli (Petrie et al., 1962);

poor family;

residence in "low-income", "deprived" area (various, see Woottaan, 1959);

membership in certain ethnic minorities (see beginning of this section);

existence of neighborhood delinquent gangs (see Bordua, 1961 and others in beginning of this section); and

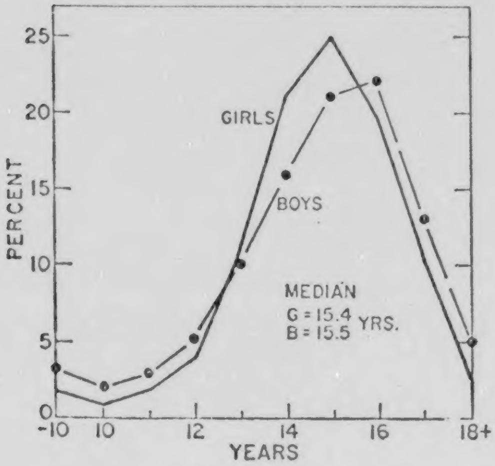
certain police/social biases (Piliavin and Briar, 1970).

Clearly the list can be continued. The various characteristics are in some cases independent and in some cases interact. Most, too, are high correlates of low SES. Indeed, the omnipresence of low SES neighborhoods in delinquency research suggests that their effects might swamp any isolated effort to prevent delinquency.

It is useful to discuss five periods in a child's development in which he might be influenced toward delinquency: prenatal and perinatal; early childhood (0-5); early school (6-10); middle school (11-13); and high school (14-17) (Figure 4.30). Delinquency rises to a sharp peak between 13 and 16 years of age, but factors predisposing towards delinquency have been

FIGURE 4.30

Age of Delinquents in 15 Courts
In the United States, 1957



Linden, 1964, p. 65

suggested for every stage of development up until adolescence. The principal question that will concern us here is that of the division of responsibility between early and late factors in childhood. To what extent is delinquency a product of specific, deterministic traumas of early development? To what extent is delinquency a "soft" psychological phenomenon, an illegal act produced by some social chemistry in the delinquent subcultures of adolescence, only vaguely predictable by the early histories of the involved individuals?

Factors which have been assigned to the prenatal and perinatal phase include genetic factors of various sorts, prenatal nutrition and traumas, and delivery conditions and traumas. These are seen as influencing perceptual ability, intelligence, or various aspects of social and emotional competence.

Family conditions are the dominant predisposing factors suggested for early childhood. The general level of intrafamily stresses is suggested, as is basic nutrition. The child's competitive patterns are often formed in this period, and the way he sees his family can affect his early selection of role-models. Some hold that the child's intelligence also can be modified by experiences in this period and that, in this way, this period can bring about a predisposition to delinquency.

The primary influences of early schooling upon delinquency seem to be in the accentuation of other problems. If learning impairments are present, they can cause the school experience to be frustrating and unpleasant, and will encourage truancy later on. If the child is hyperactive, his restlessness may make a school a very confining place, and again lead to future truancy. There will be opportunities for the acting out of aggressive or sadistic tendencies, which can prevent easy friendmaking.

As the child moves into middle schooling, social factors become important. In a search for models, the older delinquent might stand out as attractive. There are often gangs or groups which model themselves on older delinquent gangs. The result can be entry into a predelinquent environment, a "delinquent subculture", with norms and ideas that stimulate delinquency in the young aspirant.

In high school, there is the potential attractiveness of peer delinquent groups or gangs. Kobring suggests:

> ...the paradoxical fact that no matter how destructive or morally shocking, delinquency may often represent the efforts of the person to find and vindicate his status as a human being, rather than an abdication of his humanity or an intrinsic incapacity to experience human sentiment. (Kobrin, 1959, p. 21)

Prediction. The large literature on delinquency has implicated a great number of factors in the potential determination of delinquency. Delinquent acts in adolescence have been linked to contemporary factors in the child's life and to factors at every period of development from birth onward.

What is the balance of influence between early and late factors? To what extent can we gain leverage on late-appearing delinquency through acts of prevention in the earlier years?

There has been a history of research efforts to find early predisposing factors. The history goes back to the turn of this century; that is, to the very beginning of the behavioral and social sciences in this country. Different hypotheses about significantly early childhood factors have followed one another. It is possible that, as in the case of retardation just reviewed, evolving social changes have produced changes in the social meaning of delinquency. What was true about the predisposition to delinquency at an earlier time is not true later. It is equally possible that the growth in the quantity and diversity of our information about delinquents has led to the testing and overthrowing of a progression of simple hypotheses about early predisposition.

Certainly, the dominant conclusions from research into the causes of delinquency have evolved over time. The research has been geographically widespread, and some transcultural generalizations have been made. The emphasis here, however, will be efforts in the United States.

Certain minor though important findings have not been affected by time. Findings that undetected learning impairments, school problems, and truancy lead to later delinquency have not been overthrown, nor have findings that early hyperactivity, whatever its cause, can have similar effects. Certain other findings have failed to fit into or contradict most serious theoretical work, and have stood alone. In this group are physique-delinquency correlations (e.g., Glueck, 1956) and some findings of perceptual differences between delinquents and non-delinquents (e.g., Petrie et al., 1962). In general, though, theory has evolved over the last seventy years or so, and intervention programs have tried to follow. Rather than listing theories and comparing them, the historical development will be followed, although the chronology is often not strict.

Early work in delinquency followed the discovery, using early IQ tests, that many delinquents were mentally deficient (the term then used if IQ was less than 70). Furthermore, it was then believed that intelligence was inherited, and therefore, delinquency bred delinquency. Goddard (1920) stated that over 50% of the juvenile delinquents he tested were mentally deficient. Sutherland (1931) gave a 1928 figure of 20%. Blueck (1934), as part of a larger inquiry, found 13.1%. Merrill (1947) found 11.6%. There are various other studies which support the later figures (Healy and Bronner, 1926; Burt, 1925; Kvaraceus, 1945; New Jersey Juvenile Commission, (1939). Shulman (1951) argues that the apparent decline is in fact due to gradual improvement of tests and testing techniques so as to be less categorical.

A few studies also examined the differences in average IQ's for delinquents and non-delinquents. The differences found were about ten points, the delinquents being lower (Kvaraceus, 1945; Glueck, 1934).

Shulman points out that, in order to accept the claim that mental deficiency in fact causes delinquency, the data must be considered:

> ...holding constant the factor of cultural stimulation. Since this has not usually been done, a finding that delinquents are inferior in tested general intelligence to non-delinquents does not necessarily prove that intelligence and delinquency are causally related but only that the same antecedent factors that contributed an inferior nature to the group from which the preponderance of delinquents were drawn also led to the preponderance of that cultural level in juvenile court arraignments...(1951, p. 767)

Two conclusions are possible if these data are accepted as describing a feature of delinquents (which point will be addressed later): (1) low intelligence causes maladjustment, which in turn leads to delinquency; or (2) delinquency and low intelligence have a common prior cause, such as cultural difference. That the implications of these two conclusions are quite different was not lost on the delinquency researchers. Several studies were done to try to resolve the question.

Maller (1937) and Shulman (1929) tested IQ differences found in schools located in high and low delinquency areas, with no reference to the children's actual delinquency. In each case, there was about twelve points' difference in favor of the low delinquency area, which they felt lent credibility to the second (cultural difference) argument.

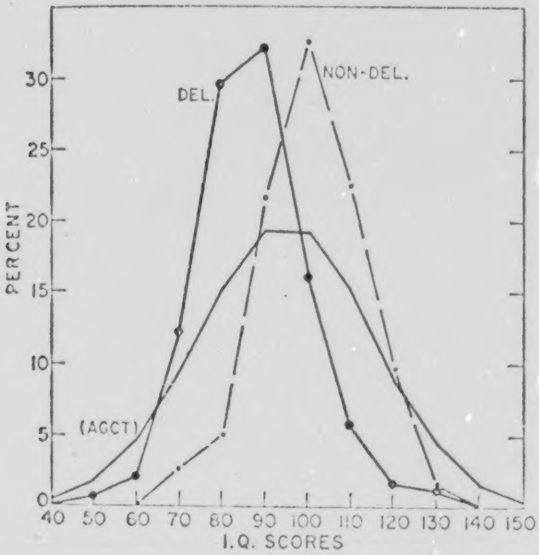
Merrill (1947), Burt (1925), and Charles (cited in Shulman, 1951) looked at the incidence of mental retardation (IQ less than 70) within selected neighborhoods and found incidence in each higher among delinquents than non-delinquents. Shulman (1951) contends that their consequent rejection of the cultural difference argument was not warranted since the neighborhoods were insufficiently homogeneous.

Shulman himself, however, reported evidence against the cultural difference argument in a sibling study done in 1929. He studied 28 pairs of delinquent and non-delinquent siblings and found that the delinquents' IQ averaged eleven points less than their siblings', although both were low. The delinquent IQ's averaged 75, nondelinquent 86. Healy and Bronner (1936) found a lesser difference on a slightly different study of 105 pairs.

The results of the mental theorist's work were rather inconclusive. They showed that there was an IQ difference, in both mean and distribution (Figure 4.31) and that some portion of it could reasonably be associated with cultural differences. There are two serious problems with the research. The tests used may not have been comparable or particularly reliable, and the data dealt only with apprehended delinquents. The latter consideration could lead to an alternate explanation that "only fools get caught". This problem has been dealt with thoroughly only in rather modern research, and it must be kept in mind in the intervening discussion.

FIGURE 4.31

IQ Scores of Delinquents and Non-Delinquents
In Iowa, 1955



Linden, 1964, p. 89

The cultural difference argument led sociologists and others to search for various ways, other than intelligence, in which delinquents and non-delinquents differed, or in which delinquency was related to various factors.

Studies investigating correlations between delinquency and various family, social, economic, political and cultural characteristics abound. Wootton (1959), for instance, surveyed forty studies and found a broad spectrum of significant associations such as some degree of correlation between delinquency and such factors as broken homes, poverty, poor housing, lack of recreational facilities, poor physical health, race, working mothers, and a variety of family characteristics. Generally speaking, the plentifully-available positive correlation coefficients seemed to suggest that most proposed factors in fact predict juvenile delinquency, a rather unhelpful finding.

It has been argued that single-variable explanations of social outcomes will generally fail. What may be of some help are multiple-variable studies. For example, Reiss and Rhodes, 1961, explore the relationships among delinquency, SES, and neighborhood. They found SES nonpredictive except in interaction with neighborhood. Palmore and Hammond (1964) show interactions among ethnicity, sex, deviancy of family background, and deviancy of neighborhood milieu. However, the interaction studies in existence are too sparse to map the full network of variables implicated in delinquency. A review of data on the interaction of family and SES in determining delinquency is offered in Willie (1967).

The general pattern found in these various correlation studies has led to an increased interest in the relationship between delinquency and low socioeconomic status areas. There had been some extensive work on mapping delinquency done in Chicago by Shaw and his associates (Shaw, 1929; Shaw and McKay, 1969 ed. of 1942). They found concentrations in low-SES areas, and these results were supported by similar studies in other cities.

The Gluecks (1950) took a large sample of matched delinquents and non-delinquents and analyzed differences between them on a variety of factors. Both groups were of low SES. The Glueck's objective was thus the identification of specific factors within "low SES" predisposing to delinquency.

The purpose of the Glueck's predictive instrument was to try to identify children who are or are not in danger of becoming later offenders at the time of school entrance. They derived their index from a comparison of 500 youths who, through arrest records, were identified as persistent delinquents, and 500 matched persistent nondelinquents. The matching took into account age, intelligence, ethnic origin, and residence in the depressed areas of Boston. There were four components to their predictive instrument: (1) a social prediction table (affection of mother for boy, affection of father for boy, discipline of boy by father, supervision of boy by mother, family cohesiveness); (2) a predictive index based on Rorschach estimates of character structure; (3) another derived from a psychiatric estimation of tempermental factors; and (4) one deriving from responses to specified intelligence tests. The latter three components are susceptible to the full range of problems that plague character/intelligence testing. Consequently, the social prediction table has generally been regarded as the most significant of the components, and it is this that has repeatedly been put to test by others.

Most of their prediction tables are designed to offer five differentiating factors which are derived from items that clearly differentiate the delinquents from the non-delinquents. Items were selected with certain considerations in mind. First, the goal was to identify potential delinquents upon or soon after entering school, therefore, the items had to be operable in the boys' lives by age six. Items indicating the most differences (in terms of frequency of incidence) between delinquents and non-delinquents were selected. An attempt was made to find factors that seemed independent and mutually exclusive. A third consideration was to select factors that could be used in everday practice by the agencies and social workers who would eventually be applying them for predictive purposes. For a detailed description, see Glueck and Glueck (1950, 1959) and Craig and Glick (1964).

On the Social Factor Prediction table, for example, the Gluecks found that the quality of the discipline of the boy by his father distinguished delinquent from non-delinquent boys and met the other considerations mentioned. Discipline was then subcategorized into divisions such as "lax", "firm but kindly", and "overstrict or erratic" (Glueck and Glueck, 1950). A delinquency score, or weighted failure score, would be computed by dividing the number of delinquents who fall into one of the divisions or sub-classes by the total number of boys in the sample who fell into the sub-class. For example, if we refer to the table below (taken from Glueck and Glueck, 1950) we see that 122 of 204 boys were found to be delinquent and to have fathers who administered lax discipline.

TABLE 4.32
Parents' Discipline of Boy

MOTHER

	Delinquents		Non-Delinquents		Difference
DESCRIPTION	Number	Percent	Number	Percent	Percent
Lax	282	56.8	58	11.7	45.1
Overstrict	22	4.4	8	1.6	2.8
Erratic	172	34.6	104	21.1	13.5
Firm but kindly	21	4.2	324	65.6	-61.4
TOTAL	497	100.0	494	100.0	

X^2=436.98; P .01

FATHER

	Delinquents		Non-Delinquents		Difference
DESCRIPTION	Number	Percent	Number	Percent	Percent
Lax	122	26.6	82	17.9	8.7
Overstrict	120	26.1	40	8.7	17.4
Erratic	191	21.6	82	17.9	23.7
Firm but kindly	26	5.7	255	55.5	-49.8
TOTAL	459	100.0	459	100.0	

X^2=277.9; P .01

The delinquency score is determined by dividing the number of boys who were not only delinquent, but also had fathers administering lax discipline (122) by the total number of boys (both delinquent and non-delinquent) who had fathers administering lax discipline (122 + 82). The resulting number (59.8) is the delinquency score. The table on the following page indicates the delinquency scores (weighted failure scores) on the item "discipline of boy by father".

TABLE 4.33
Discipline of Boy by Father*

	Delinquents		Non-Delinquents	
SUBCATEGORY	Number	Percent	Number	Percent
Lax	122	59.8	82	40.2
Overstrict	120	75.0	40	25.0
Erratic	191	69.9	82	30.1
Firm buy kindly	26	9.3	255	90.7

*Weighted failure score

For each of the five sub-categories of the Social Factor Scale (discipline of boy by father, supervision of boy by mother, affection of father for boy, affection of mother for boy, and cohesiveness of family) the lowest delinquency score was added to determine the lowest possible failure score. References to the chart indicates that these scores define a range from 116.7 to 414.

SOCIAL FACTORS	WEIGHTED FAILURE SCORE
1. Discipline of Boy by Father	
Overstrict or erratic	71.8
Lax	59.8
Firm but kindly	9.3
2. Supervision of Boy by Mother	
Unsuitable	83.2
Fair	57.5
Suitable	9.9
3. Affection of Father for Boy	
Indifferent or hostile	75.9
Warm (including over-protective)	33.8
4. Affection of Mother for Boy	
Indifferent or hostile	86.2
Warm (including over-protective)	43.1
5. Cohesiveness of Family	
Unintegrated	96.9
Some elements of cohesion	61.3
Cohesive	20.6

The range was divided into seven class intervals, and then:

> By assigning to each delinquent and non-delinquent, concerning whom information was available on all factors, his score on each, summating the scores, and distributing the cases into the appropriate score class, we arrived at the detailed prediction table (below), after translating the number of cases in each subclass into a per cent of the total number in each score class. These then became the chances out of a hundred of potential delinquency and non-delinquency. (Glueck and Glueck, 1950, p.)

TABLE 4.34
Detailed Prediction Table
from Five Factors of Social Background

Weighted Failure Score Class	Number of Delinquents	Chances of Delinquency (per 100)	Number of Non-Delinquents	Chances of Non-Delinquency (per 100)
Under 150	5	2.9	167	97.1
159-199	19	15.7	102	84.3
200-249	40	37.0	68	63.0
250-299	122	63.5	70	36.5
300-349	141	86.0	23	14.0
350-399	73	90.1	8	9.9
400 and over	51	98.1	1	1.9
TOTAL	451		439	

The predictive index based on estimates of character structure is referred to as the "Prediction Table Constructed from Character Traits Determined in the Rorschach Test." The Gluecks regarded this measure as somewhat tentative, although we shall see it correlates quite well with the Social Factors measure. Their tentativeness resulted from the need to possibly modify the results of the Rorschach for different age levels and from the recognition that the Rorschach requires trained administrators. Interpretations to differentiated potential delinquents from non-delinquents on the projective tests were: social assertion; defiance; suspicion; destructiveness; and emotional stability. In fact, this predictive instrument has been little used.

A third predictive measure was based on personality dynamics, as estimated by a structured psychiatric interview. The "Prediction Table Constructed from Personality Traits Determined in Psychiatric Interview" was seen as more useful for prediction than the measures based on the administration of the Rorschach Test because the interview required less time than would administration and scoring of the Rorschach. Obviously, here again, a trained clinician is required. The five factors developed by this procedure are all considered deep-rooted emotional dynamics. This procedure sought to assess extroversion in action, suggestibility, stubbornness, and emotional instability.

The results of the heterogeneous attempts to validate the Gluecks' instrument are summarized in Glueck and Glueck (1959) and E. Glueck (1960). In the latter, Glueck summarizes the findings of 18 inquiries in which the social prediction table had been used, virtually all postdictive:

> The results thus far indicate that regardless of ethnic origin, color, religion, intelligence, residence in urban or rural areas, economic level, or even sex, the predictive cluster is equally potent, not only on American but on Japanese and French samplings.
>
> With these facts in mind we may look at some comparative figures:

	New York	Washington	Glueck 3-Factor Table
Correct predictions	91.7%	78.5%	82.3%
Correct predictions of delinquency	81.6%	80.5%	88.9%
Correct predictions as % of all those who became delinquent	63.6%	83.7%	70.3%
% reduction in error (correcting for unpredicted)	56.8%	38.6%	64.2%
% reduction in error (omitting unpredicted)	72.6%	57.6%	84.0%

> In the original Glueck table where 50.7 per cent of the sample was delinquent, the percentage reduction in error was 62.1 per cent. The Washington study shows lower percentage reductions in error. It should be noted, however, that the "best" prediction for New York was success, and for Washington was failure....It is, of course, extremely difficult to say whether or not these are successful results. Much depends upon what one thinks ought to be predicted. Although it is true, as Kahn (1965) points out, that the figures given in the reports could well be misleading, they all still might be very good. It depends what one compares them with. (Rose, 1967, pp. 23-25)

However, much of the Gluecks' predictive work has come to be questioned. There are clear problems of generalizability from their original sample to any arbitrary population (Bordua, 1961b). Many of the conclusions drawn from the original tables are not supported in the data (Hirschi and Selvin, 1967, Chap. 14). Others criticize some ambiguities in the criteria. Furthermore, there are few grounds to believe, even if delinquency is detected early, that effective intervention techniques are available.

The Gluecks' predictive instrument is, undoubtedly, the most well-developed device now available for bridging the work of early childhood programs and adult programs. It is conceivable, at least, that this instrument might be a basis for the development of short-run criteria for early childhood programs.

It is of interest to examine two validation studies in particular, as they represent the only true predictive studies of any instrument available. Full reports are given by Tait and Hodges (1962) for Washington, D.C. and by Craig and Glick (1964) for New York.

> Before considering these results we should look at some differences between the New York and Washington samples. The New York sample consists of boys only and they are the unselected intake of elementary schools, while the Washington sample had 47 girls (no separate results are given) and were referred cases in a study attempting to work with delinquency-prone children. Secondly, the New York study had 130 whites (of whom at least 23 were Jewish), 131 Negroes and 42 Puerto Ricans, whereas the Washington study had 106 Negro boys, 39 Negro girls, 26 white boys, and 8 white girls. Thirdly, the ages at entry into the two studies were 5 1/2 to 6 1/2 in New York and 5 to 14 in Washington (distribution not stated but only 17 per cent had reached 13 at the time of the follow-up). The Washington data were collected between September 1954 and June 1957 and followed up to 1962, and it is not clear whether the period of follow-up is exactly the same in each case--it is obviously somewhere between 5 and 8 years. Lastly, the New York assessment seems to have been done on one visit whereas in Washington there was close contact. In view of these differences it is interesting to note that the failure rate in New York was 14.6 per cent and in Washington 67.9 per cent; the Washington cases were much more likely to become delinquent despite the inclusion of girls (although it appears as if serious sexual irregularities have been taken into account). It is impossible to say whether the criteria for "persistent delinquency" were applied equally in the two studies. However, it was much more difficult to predict delinquency in New York than in Washington.

The tendency today, however, is toward some skepticism about the role of SES, family factors, and cultural factors as direct sources of delinquency. They may predict arrest patterns much better than they predict delinquency itself. Virtually all U.S. studies through about 1959 relied on arrests or juvenile court cases for their definition of delinquency. In 1946, Murphy et al. had reported on a five year study of 114 Massachusetts boys. They found that 101 had committed 616 serious acts of delinquency for which only 40 boys received official records. This suggested that the incidence of delinquency was much higher than the official statistics suggested.

Some careful self-report and interview research has suggested that in fact social class and delinquency are not significantly related per se (Nye et al., 1958; Hirschi, 1969). This research was contemporaneous with some studies of police and court procedures, which are summarized in Hart and Bodine (1971). In one such study, Piliavin and Briar (1970) observed police interaction with juveniles over a nine month period. In the city they studied, one of five official actions could be taken against youthful offenders: (1) outright release; (2) release and submission of a field interrogation report briefly describing the circumstances initiating the police-juvenile confrontation; (3) official reprimand and release to parents or guardian; (4) citation to juvenile court; (5) arrest and confinement in juvenile hall.

Officers were free to make the disposition they felt appropriate. Crimes such as robbery, homicide, aggravated assault, grand theft, auto theft, rape, and arson posed little problem to the officers. They generally regarded the offenders as confirmed delinquents simply by virtue of the magnitude of their offenses.

For lesser offenses, the specific act of the juvenile apparently played an insignificant role in the choice of disposition relative to an assessment of the boy's personal characteristics. While in the field, the officers did not have records of the boy's past offense records, school performances, or family situations, and relied on information and cues gathered from their interactions with the boys. These cues played an important role in the officers' decisions regarding disposition, and served, in essence, to define delinquency for them. The officers took note of:

> ...the youth's group affiliations, age, race, grooming, dress, and demeanor. Older juveniles, members of known delinquent gangs, Negroes, youths with well-oiled hair, black jackets and soiled denims or jeans...and boys who in their interactions with officers did not manifest what were considered to be appropriate signs of respect...The observations made in this study serve to underscore the fact that the official delinquent, as distinguished from the juvenile who simply commits a delinquent act, is the product of a social judgment, in this case a judgment made by the police. He is a delinquent because someone in authority has defined him as one, often on the basis of the public face he has presented to officials rather than the kind of offense he has committed. (Piliavin and Briar, 1970, p. 31)

The net result of the discovery of this bias was a need to reappraise both the assumptions and the programs that had arisen out of earlier research. Work was begun to more generally map the causes of delinquency, official and non-official.

Hirschi (1969) studied 4,077 junior high and high school students in Contra Costa County in California. A 432 item questionnaire was administered (not anonymously, although names were used only to bring records together), school records were obtained, and finally police records in the general area were obtained for the boys. Hirschi hypothesized that "...delinquent acts result when an individual's bond to society is weak or broken." (p. 16) He characterized the bonds as those of attachment, commitment, involvement, and belief. He further assumed that there was some form of natural motivation, given the breakdown of these bonds, which caused a juvenile to become delinquent.

His findings with some exceptions bore out the hypothesis. Low levels of communication and commitment to parents were predictive of delinquency. Low expectations, whatever the ambition, were also found to be associated.

Delinquency went with a low level of involvement and interest in adolescent ideas and practices prevalent among "good" youths, as shown by boredom and/or interest in more "adult" practices (drinking, driving, sex). An interesting finding was that delinquents tended to perceive themselves as more "well-built" than nondelinquents. The Gluecks, in 1950, had found **such a** difference in fact rather than perception.

Hirschi felt that he had probably overestimated the "natural motivation" to delinquency in the absence of bonds.

> The theory underestimated the importance of delinquent friends; it overestimated the significance of involvement in conventional activities. Both of these miscalculations appear to stem from the same source, the assumption of "natural motivation" to delinquency. If such natural motivation could legitimately be assumed, delinquent friends would be unnecessary, and involvement in conventional activities would curtain the commission of delinquent acts.
>
> In other words, failure to incorporate some notions of what delinquency does for the adolescent probably accounts for the failure of the theory in these areas. Notions about the contribution delinquent activities make to the person's self-concept or self-esteem would also seem to be necessary in accounting for much of the potency of the adult-status items, such as smoking, drinking, dating, and driving a car. (Hirschi, 1969, p.230)

The study also notes that low "...academic ability and school performance influence many if not most of the variables that turn out to be important predictors of delinquency." (p. 134)

Academic ability, which correlates highly with intelligence, is not an unfamiliar factor in investigation of causes of delinquency, nor are several others of Hirschi's findings. In short, the research seems to be showing that many of the causes already discovered in official and low-SES delinquency are also operant in unofficial delinquency, although their exact forms may differ.

In terms of the phases introduced early in this section, the research traced above has suggested three factors that are present before middle schooling: influences on intelligence and retardation in the prenatal and childhood phases; family association; affection; discipline; and communication patterns in the childhood and early school phases; and school and social impairments, such as learning disability, hyperactivity, and overaggressiveness in the early schooling phase. Information on the influence of delinquent and predelinquent gangs in the middle and high schooling phases can be found in Thrasher (1927), Cohen (1955), Cohen and Short (1958), Miller (1958), Cloward and Ohlin (1960), and Bordua (1961).

It is not clear how much influence gangs or the deliquent subculture have. Do they cause delinquency or catalyze it? Youth groups seem to be heterogeneous in their relation to crime. Cohen and Short (1958) discriminate four types of delinquent subcultures: (1) parent-male subculture which engages in occasional, "garden variety", hedonistic kinds of delinquency. These are, apparently, young gangs that sometimes commit crimes to show style and daring; (2) a conflict-oriented subculture consisting of urban fighting gangs; (3) a drug addict subculture commited to crime because of the economic pressures of addiction; and (4) a semi-professional theft subculture explicitly organized for stealing.

Intervention. There have been no highly successful intervention programs to prevent juvenile delinquency. Attempts have roughly paralleled the research in their development, and have taken both group and individual approaches. Few, if any, have attempted to deal with primarily middle-class delinquency.

Early attempts to reduce delinquency were the institutionalization of "mental deficients" before the nature of mental retardation was studied at all. As Shaw's (1929) and others' work on the geographic distribution of delinquency came to be known, efforts shifted to "neighborhood welfare" programs, which attempted to go into the low-SES areas and work with schools, agencies, gangs, and individual youths. In several cases, the goal was to get community leaders involved in youth programs so as to provide "good" role-models for children (Kobrin, 1959). Such efforts led to much of the more specific research on the causes of delinquency in such areas.

The Glueck's Social Prediction Table was used in two experimental studies to identify prospective delinquents who would then receive intensive counseling (Craig and Glick, 1964; Tait and Hodges, 1962). Although the predictions, based on family affection/discipline patterns, were very accurate, the psychological counseling was ineffective as a preventive measure.

Summary

It is difficult to find a clear target for appropriate efforts in childhood and early schooling in the foregoing research. The general run of case histories have implicated almost all of the known adversities and stress factors of early childhood in the suspected etiologies of at least some delinquents. Repeated attempts to pin down a single large controlling variable--IQ, SES, cultural difference, or family patterns--have so far not been persuasive.

One possible problem may be that 'delinquency', like 'health' may be so gross and heterogeneous an outcome variable that it is unreasonable to expect to trace sources back to anything other than gross, probabilistic interacting input variables.

School Failure

How may we identify the student who will not graduate from high school? We shall look at three approaches which are representative of the types of attempts made to predict school difficulty and failure.

Webb and Pate (1970) tried to devise a measuring instrument capable of predicting school failure in the first three years of elementary school. They tested in September of the first grade and again at the end of the third. The September score on the First Grade Screening Test was compared with scores on the third grade achievement tests (Stanford Achievement Tests--Forms W and Y), and with ratings by third grade teachers. Scores on the First Grade Screening Test ranged from 0 to 29. Scores of 0 to 19 identified 85% of the children who failed in grades 1, 2, or 3. Median achievement level for those scoring 20-29 on the FGST was 1.1 grade levels higher than those scoring lower.

The FGST represents an effort to predict school difficulty early in the academic life of the student, and is able to discriminate somewhat between those who are likely to have difficulty and those likely to be successful. It does not provide information regarding what should be done to aid those likely to have school difficulties.

A second approach to predicting school difficulties is represented in the work of Whisenton and Lorre (1970). It requires measurement of certain personality characteristics of all students, comparison of the group that drops out of school with the group remaining in school, and follow-up to determine what becomes of them. For example, Whisenton and Lorre administered the Whisenton Belief Scale, Whisenton's Academic Level of Identifying Figures, Sim's Fields of Study Motivation Record, and the Stern Activities Index to a large sample of children in a Southern urban Negro high school. The children were in the ninth grade when the tests were first administered. Nine months later approximately 22 percent of the girls and 18 percent of the boys had dropped out of school. The drop-outs tended to have a more fatalistic view of life and to identify with glamorous figures in the entertainment and sports world. Whisenton and Lorre also report that the continuing males had higher motivation than those who dropped out, whereas there was no motivational difference between the two female groups.

While we may note motivational distinctions between boys who continue school and boys who drop out, as well as establish that the two groups have differing views on life and heroes, it is likely that other variables distinguish between the two groups. The measures in this instance do not seem to aid in our predictive ability as much as they serve to identify certain personality characteristics distinguishing dropouts from graduates.

A third approach involves a comparison of the scholastic characteristics associated with high school dropouts and poorly performing graduates (Fitzsimmons, Cheever, Leonar and Macunovich, 1969). Fitzsimmons et al. compared students who graduated from high school but performed poorly with students who dropped out of high school. Poor performance was defined as earning at least three D's or F's during high school. The data included all students with poor performance who had records available through elementary school in most of Minnesota. They found that the majority of students who did poorly in high school could have been identified early in elementary school. This conclusion stemmed from the observation that fifty percent of those performing poorly in high school had already experienced the first failure in the second grade; seventy-five percent had done so by the fourth grade; and ninety percent had failed subjects by the seventh grade. Initial difficulties in English and mathematics were critical. A second important finding is that the onset of initial failures among dropouts was later than the onset for poorly performing graduates. This suggests that the student who does not fail in the early elementary years but does fail later is more likely to drop out of school than the student with a history of failures beginning early in his academic career. Fitzsimmons et al. propose that "...measures designed to decrease the dropout rates of high school students should begin prior to high school and focus on a combination of academic assistance, counseling, and possible home visitations" (p. 134).

A thorough study of family factors and school dropout (Duncan, 1965) has revealed several important results. Duncan (1965) proposes a model of the paths of influence on educational attainment which assumes that "the father's education and father's occupation both influence the number of siblings a boy has; number of siblings together with father's educational influence how much schooling a boy attains" (p. 3). She concludes that the immediate family context accounts for about thirty percent of the variance with respect to the number of school years complete. The conclusion was based on reports of the ultimate educational attainment of adult males. Furthermore, she notes that:

> Growing up in an intact, rather than a broken family, results in not less than 0.6 and perhaps as much as 1.0 years more schooling for a boy. An increase of a year in the educational attainment of the father results in 0.2 years more schooling. A decrease of one in the number of siblings results in an increase of about 0.2 school years. Each is the effect of the given family background factor when the other three factors have been held constant statistically, and accordingly the effects are additive. (pp. 8-9)

Other findings for white boys aged 14-16 living in intact families indicate that the more years of education the father has, the lower the percentage of boys not in school and the fewer the number of boys in grades lower than those of their cohorts. Also, "as the socioeconomic status of the father's occupation rises, the percentage not enrolled and the level of age-grade retardation fall" (p. 9). Duncan also reports that more and more students are staying in school longer than in the first half of this century, i.e., the trend is for fewer students to drop out.

"Contrary to popular expression, the high school 'dropout' rate is declining; the proportion finishing high school has risen from 58 percent as recently as 1955 to the current rate of 75 percent or thereabouts and is expected to reach 85 percent by the mid 1970's" (Silberman, 1971). Thus we may be optimistic about the trend for more students to graduate from high school. Nevertheless, at present close to two of every ten students leave school before graduating. This may be a conservative estimate, for Cervantes (1965) estimates the dropout rate among high school students to be between 30 and 40 percent. What happens to this group of individuals who drop out of school?

"There is need for a substantial body of evidence on the question of what happens to the dropout", state Schreiber, Kaplan and Strom (1965). Nevertheless, these investigators summarize the available research as follows:

> To ascertain the economic, vocational, and social destinies of former dropouts is the purpose of follow-up studies. Questionnaire and indirect assessment have been the usual tools in this encounter. The small proportion of investigations carried on in this important area challenges the popular assumption that all dropouts are lost, that their migration from school is necessarily a tragic one. Figures indicating a 25 percent unemployment rate among dropouts also point up the fact that *3 out of 4 dropouts are gainfully employed.* (emphasis added, p. 12)

Thus, while dropping out of school is commonly considered a handicap in securing an occupation, it is not a bar against employment for 75% of the dropouts.

Duncan (1965) points out the more pessimistic aspects of dropping out of school by referring to the Special Labor Force Reports of the Bureau of Labor Statistics; these reports compare the work force entry of high school graduates and dropouts. Recurring themes since 1959 have been: (1) dropouts are less likely to be in the labor force; (2) dropouts are more likely to be in unskilled occupations if employed; and (3) the dropouts appear to be handicapped not only during the period of labor force entry, but for at least several years thereafter (Duncan, 1965, p.5; also U.S. Bureau of Labor Statistics, Special Labor Force Reports, Nos. 5, 15, 21, 321, 41, and 54).

Hathaway, Reynolds, and Monachesi (1969) provide one of the few studies on what happens to a rather large and representative sample of male high school dropouts, during the first ten years after the boys have left school. The size of the home community, SES level of the parents, IQ scores, MMPI test results, and birthdates were obtained from 11,329 subjects who comprised a statewide sample. Follow-up information was obtained on date of marriage, present marital status, region of residence, size of community, number of children, present occupation, type of training since high school, offenses against the law, emotional problem (as defined by known contact with a psychiatrist or psychologist in an in-patient or out-patient setting) and status with the armed service. Hathaway et al. report that 18% of the boys and 14% of the girls dropped out.

The most marked feature distinguishing the male high school dropout from the graduate was not reported to be rate of unemployment; rather, "the most marked feature...is the occupational level achieved by the time these men are in their late 20's" (p. 377). Dropouts in their late 20's were likely to be slightly skilled or unskilled laborers. The investigators go on to state:

> Even if a bright boy drops out of school, the data show that he is much less likely than his bright schoolmate who graduates to get later training of any kind and that he is much more likely to subsequently fall into the ranks of the semi-skilled, slightly skilled, day laborer, and unemployed. (p. 377)

The dropout was also likely to have a lower SES level than his family of origin, regardless of the SES of the parents. In other words, dropping out of school was likely to lead to poorer life chances (lower earning power) than was staying in school. This complements the finding of Blau and Duncan (1967) that the number of years of schooling completed had a much higher relationship with later career than did the father's occupational status. However, it should be remembered that Duncan (1965) found that father's occupation related to whether the child remained in school. Hathaway et al. found few differences in the measured characteristics between early and late dropouts.

In a separate analysis of a follow-up of 812 girls ten years after high school dropout, Hathaway et al. examined the reasons offered by the girls for their decisions to drop out. They found that the most frequent reason was marriage, which accounted for 37% of the dropouts. They go on to report that 22% of the girls stated lack of interest; 15% were pregnant out of wedlock; 9% wanted to go to work; and, only 5% offered failure in school as the reason for dropping out. Thus it may be suggested that variables predicting dropping out of school for girls are quite different from those for boys. Given the few studies of girls who drop out, however, we should approach this interpretation cautiously.

In summary, we may conclude that the dropout is likely to find employment after leaving school. However, the employment is most often as a slightly skilled or unskilled laborer. The SES level of the dropout will most likely be lower than his family or origin. Academic failure is more likely to lead to dropout for males than for females.

Furthermore, the future perspectives of dropouts are not likely to improve. There appears to be a growing tendency by employers to reject anyone lacking a high school diploma (Silberman, 1971). This tendency seems to bear little relation to the technical requirements of the present occupational structure. In part this demand for more education reflects a major cultural change in the United States. Silberman discusses this at length.

> The United States is becoming more and more of a 'credential society', a kind of pseudo-meritocracy in which a person is judged by his credentials--his high school or college diploma--rather than by his performance on the job. These tendencies have been aggra-

> vated by the various campaigns designed to persuade youngsters to finish high school. Constant repetition of the thesis that to get a job, students need at least a high school diploma... has helped persuade employers that 'dropouts' are indeed unemployable. (p. 68)

Perhaps the most unfortunate aspect of the situation is that there seems to be "little correlation between people's performance on the job and either the amount of education they have had or the marks they have received" (Silberman, 1971, p. 68; see also Berg, 1970).

In summary, even though the dropout rate is thought to be declining, a significant number of students still decide to leave school before graduating. Perhaps the early identification of these students will enable educators, parents, and psychologists to convince the potential dropout of the limitations he may be placing upon himself. Thus far, efforts at devising instruments capable of predicting school dropout have concentrated on: (1) establishing the relationship between early difficulties in school and dropout; (2) measuring personality differences between the dropout and the graduate; and (3) examination of the previous history and environment of the dropout. We may compile the results of some of the studies concerned with efforts to predict the school dropout, but this does not tell us which of the potential dropouts will actually dropout, nor does it suggest what may be done to prevent their doing so.

Education and Income

Many support the view that the more schooling one has the more income he may expect to earn. Hartnett (1971) reports that most experts now feel that "the percentage of income differential directly due to schooling is somewhere between 67% and 82% (p. E-6). However, lest one suppose that college graduation alone is sufficient for success, Hartnett points out that personality traits of students should also be considered in accounts of their success. A second factor limiting the generalizability of the notion that going to college results in greater earning power is that the value (in terms of earning power) will almost certainly decline as more and more high school graduates attend college. This may result in a situation where "young people...will have everything to lose if they don't go to college, but very little to gain if they do. One might say that going to college is increasingly become a defensive rather than an offensive career decision" (Hartnett, p. E-10).

Currently the individual with a college degree will earn more lifetime income than the individual with only a high school degree. If Hartnett is correct, however, the situation may change so that the college degree will only be as good as the high school diploma is today. While high school dropouts are disadvantaged at present, the situation could conceivably become far worse.

Family Income and Child Education. Low income (and its concomitants) have multiple effects on a child's life; children whose fathers earned less than $7,000 (in the late 50's) differed in several respects from those whose fathers earned more than $7,000. These differences are elaborated in Sexton's (1961) study of one of the largest cities in the country (called 'Big City'). Sexton argues that the term "social class" has various definitions but that whatever the definition, family income is one of the indices of social class. Other indices which are highly correlated to family income are: occupation of the father; type of housing; and, educational levels. "Thus a 'lower class' family will tend to have a low income, lower status (as well as lower-paying) occupations, poor housing, and low educational levels. A family possessing any one of these characteristics will tend to possess all of them" (Sexton, p. 11).

Obviously, there are exceptions, such as teachers and librarians. In general, however, the more education the family head has, the higher the family income is likely to be.

Sexton's study included data on 285,000 students, 10,000 teachers, and almost 300 schools in Big City. For information on school achievement, the scores of fourth, sixth, and eighth grade students on the Iowa Achievement Test were used. Three results are of particular importance: (1) all schools where average family income was over $7000 had a mean achievement score above grade level. All schools below $7000 were achieving below grade level. (2) As income rose so did achievement scores. (3) In the fourth grade sample, the highest income group achieved at a level two years above the lowest income group (pp. 26-27). Thus, achievement levels in schools serving low income students were lower than the achievement levels in schools serving high income students.

The relationship between IQ and income is parallel to that of achievement and income. IQ scores tended to be higher in schools serving higher income groups. Sexton also found that slightly more than 10 percent of the children in the lowest income group ($3500) failed, against a failure rate of less than one percent in the highest income group ($11,055).

The Sexton findings indicate that children of parents with low income (below $7000 in the late 1950's) are affected adversely in relation to children in high income families. The findings offer empirical support for the observation that children of parents on the low end of the income scale are more likely to become parents earning low incomes than are children of high income parents.

Occupational Success. The classic study of the American occupational structure is that of Blau and Duncan (1967). They point out that an individual's region of birth affects his occupational chances. That is, men born in the South, white and black have inferior occupational chances, whether they remain there or migrate north. Size of family origin affects occupational success; the man from a small family is more likely than a man from a large family to continue his education on every level up to college graduation Further, the occupational attainments of children born in intermediate positions of large families are likely to be inferior to those of first and last born children.

In addition to region of birth and family factors affecting occupational attainment, Blau and Duncan discuss the relationship between race and occupational success. They point out that:

> Negroes do have less advantageous social origins than whites, their education is indeed poorer than that of whites, disproportionate numbers of them are actually from the South where the opportunities are inferior, and they start their careers on lower levels. Yet even when these differences are statistically standardized and we examine how Negroes would fare if they did not differ from whites in these respects, their occupational chances are still inferior to those of whites. It is the cumulative effect of the handicaps Negroes encounter at every step in their lives that produces the serious inequalities of opportunities under which they suffer. (p. 23, emphasis added)

Does education help to overcome some of the handicaps that blacks encounter? Blau and Duncan concluded that better educated blacks fare even worse relative to whites than uneducated blacks. Silberman (1971) refers to this interesting point, for it suggests that dropping out of school may be more rational than educators and others have been willing to admit (p. 66). He goes on to state, however, that:

> it must be recognized that this analysis reflects the heritage of the past, when most decent occupations and jobs were barred to Negroes....While prejudice has hardly disappeared, overt discrimination is declining; governments, corporations, and non-profit institutions are all taking active measures to increase the number of blacks in skilled, technical, professional, and managerial positions. (p. 66)

The observation that schooling is a poor investment for the Southern rural black has been made by Welch (1967). He writes, "a non-white with no schooling will receive 81 percent of the income of a similar white. Yet, for non-whites, school attendance increases income at a rate which is only 28% of the corresponding increases for whites" (p. 235). Welch's estimate was based on the 1960 Census. When he later reports (1972) on a reexamination of the data and on more recent data, he indicates "that the early conclusions reached were simply wrong. Not only does more recent data show very substantial returns to non-white schooling, but a respecification of the earlier data shows that in 1959 the returns to fairly young persons were not trivial" (p.2). It appears, then, that the original answer to the question--does education help to overcome some of the handicaps that blacks encounter?--has been changed. The earlier response was that the better educated black met with less success relative to whites than did the uneducated black. Changes in attitude, in employment opportunities and in hiring, however, have helped to decrease the discrepancy between the occupational success of the highly educated black, on the one hand, and the highly educated white on the other. This is not the same as saying, however, that the opportunities for occupational success for the two groups are equivalent.

This brief discussion has sought to examine some factors relating to occupational success so as to draw a somewhat better picture of the outcome of some early childhood variables. We have seen that region of birth, size of family, and race are important variables to consider in attempts to understand the factors affecting eventual occupational success. While it is not necessarily true that one of these variables alone will be sufficient to limit the opportunities of certain groups of our society, it is likely that occupational opportunities will be limited when several of the factors are present at the same time. For example, a black born in the rural South, who comes from an intermediate position in a large family and who later drops out of school, is much more limited in occupational opportunity than is a black school dropout from a small family in the North. Further, we have indicated that there appears to be an improvement in occupational opportunity among educated blacks. That is to say, there has been an increase recently in occupations open to blacks which reward them with income equal to whites for the same work.

Summary: Education, Income and Occupation. One who attempts to describe the outcomes relevant to intervention must feel as the photographer who discovers that his photograph is blurred. The picture is recognizable to the trained eye, but not clear enough to allow us to focus on specific detail. We have some suggestion that the child who first fails in school around grade four and continues to fail occasionally is likely to drop out of school before graduation. If he does drop out he is less likely to be in the labor force than the high school graduate, but chances are he will be employed (75% are employed). He will most likely be an unskilled laborer and his socioeconomic status will probably be lower than that of his family or origin. Girls probably drop out of school for different reasons than boys, at least their stated reasons for dropping out would lead us to this conclusion. It appears that marriage, lack of interest, pregnancy out of wedlock, desire to work and failure in school (in that order) contribute to the girls' decision to leave school.

Most of the other information on outcomes is from the sociological literature. Family stability, father's educational level, size of family, area of birth, race, and income level of the father are related to adult outcomes of interest to intervention policy makers. The child born in the South, in a single-parent family, with several siblings, and with a father who [illegible] not graduate from high school is seriously handicapped. Chances are that his adult situation would be even worse than that of his father.

We have encountered some unpublished analyses suggesting that, perhaps a result of recent anti-discrimination efforts, the income returns from education for blacks may have recently improved and may now approach that for whites. We have also encountered other analyses based on recent data that statistically "give" education and SES to blacks to show that their income still falls substantially below that of whites....to suggest that employment discrimination is still a very large factor in low black incomes. The resolution of analytic issues such as these is beyond our scope; we note them only as a sign that there may be ongoing shifts in the predictors of income and their relative importance.

Conclusions

This review of the literature on prediction from childhood characteristics to adult outcomes has, hopefully, indicated the general state of the art. We believe it is somewhat rudimentary. Nevertheless, there is substantial scientific and popular belief that events occurring in childhood have a significant formative effect on the development of the child. Undoubtedly this is true. However, if we take out of consideration certain obvious kinds of disaster, and consider the range of variation of the normal home and the normal family, then it seems that we know quite little about what the specific effects of early events are on the later adjustment and success of the child.

We can make percentage guesses about certain populations of people, e.g., an epidemiologist might be able to estimate the percentage of children in a certain socioeconomic group who would suffer from neurological handicaps. But group percentages are quite different from individual predictions. Throughout the literature, authors have stressed their inability to make predictions about individual children.

The fact that we simply do not as yet know enough about human development to identify the antecedents of particular adult characteristics is related to the complexity of the developmental process. Studies of only one variable (holding other variables constant or attempting to randomize them) are not likely to yield predictive relationships. The one generalization which has emerged again and again is that all variables and their interactions must be considered simultaneously. The effects of father absence, or of mild perinatal stress, tend to vary with other characteristics of the child and the environment. That is, one event, such as father absence, is not enough of an influence to account for juvenile delinquency. Other variables -- the mother's behavior, the circumstances preceding the absence, the family's income -- must also be considered. Indeed, a recurrent finding is that the home climate (a multidimensional variable) is significantly more important than father absence per se (Herzog & Sudia, 1970).

This inability to locate powerful single variable predictors is positive in one sense. For example, previously, being black was enough to predict reasonably certain outcomes in adulthood -- outcomes such as poverty and little education. We are no longer able to predict that the black child will become the low-income adult. The consistent identification of the one variable race (or discrimination against a certain race) has been sufficient to mobilize action to minimize the predictive power of the variable. Perhaps the remaining most powerful predictors are IQ and SES, which are, it seems, inextricably intertwined. And SES is a global variable which subsumes a multiplicity of variables. Now we need studies which assess interactions. Only through studies with a sufficient scope to follow subgroups with various combinations of characteristics are we likely to come close to an ability to make predictive statements.

A second generalization concerns the possible interactions between negative characteristics and socioeconomic status. For example, birth difficulties may lead to a higher percentage of deleterious consequences in the lower SES groups than in the higher SES groups, and birth difficulties are more common in lower SES groups. However, SES includes a variety of influences -- income, living conditions, peer groups, parent-child interactions, expectations, and so forth. We do not know which particular aspects interact with development risks, but we do know that some or all of the cluster interact. The importance of that complex of variables conjointly labeled SES is emphasized by many. For example, Werner et al. (1971) in *The Children of Kauai* found that "ten times more children had problems attributed to the effects of a poor environment than to the effects of serious perinatal stress" (p. 134). Low SES is a generic term which currently seems to point to an overload of potentially negative influences on development in some cases. The concept of load is an important one. If a child has one, or two things going against him, he has a chance; but five or six or seven things against him will more than minimize any chance of equal opportunity. The multiplicity of the "potentially negative influences" in a disadvantaged group would not only render one-variable prediction virtually impossible, but we might also expect the success of an interjected one-variable "positive influence" to be minimal. If there is no *one* causal relationship between childhood and adulthood, it is equally unlikely that there is a one-variable panacea when development is not proceeding "optimally".

It is not new to find that social phenomena and child development phenomena are not explainable by linear cause-effect relationships. On the contrary, there have been arguments for decades that such phenomena must be addressed as resultants of networks or fields of dynamically interacting factors. What keeps the issue alive is that we do not, as yet, know how to construe or model network causation in any rigorous way. The closest approximation we have had comes through the application of statistical 'multivariate' techniques to variables such as those considered in this chapter. But there are three powerful limiting factors that severely restrict the explanatory power of multivariate techniques at this time.

First, most variables that we submit to such analyses we either know to be conglomerate (e.g., 'juvenile delinquency') or we have every reason to believe are conglomerate (e.g., 'SES').

Second, even the simplest of our variables are imprecisely measured or indexed. Our numbers give us not an exact truth about a person or a situation but a probabilistic truth. When numbers are compounded together in complex models, imprecisions multiply rapidly.

Third, the statistical models we have so far applied in multivariate work embody only the simplest of schemes for network causation. There are few variables and those variables are held to simple linear relationships with one another. Recently, a somewhat more complex model, "path analysis", has been directed towards some of the main variables and prediction issues treated in this chapter (Jencks et al., 1972). This is the most venturesome attempt at complex quantitative prediction yet attempted. A brief description of the analysis is given in Appendix IA.

One other point encompassed in the chapter review is worth noting. It appears that the liability coming from familial 'mental retardation' has not been historically constant. Rather, retardates could look forward to a decent future at the turn of the century while today they can expect a very marginal status in society. We have been assessing retardation with fairly constant techniques throughout this century and it is likely that those we today identify as retarded are pretty much like those we have previously picked out -- excluding, of course, those sets of individuals picked out because of cultural differences. Probably, the change in retardate disadvantage has come about because the society has less and less room for less skilled, less productive labor. The same can be said for the school dropout. The problems of retardation and dropout are only superficially problems arising in childhood. They are fundamentally problems in the relationship of the social frame to a special set of individuals. If the problem is viewed in this way, it is not axiomatic that it should be attacked only through attempts to fix the individuals.

Chapter 5: Goals and Standards of Programs for Education, Child Development and Family Intervention

Summary

Serious problems exist in providing measurements and indices to gauge the extent to which programs are accomplishing their generally understood purposes. The problems are these:

-- Generally, the available psychological tests seem most adequate and trustworthy when measuring the traditional cognitive issues of IQ and school achievement. Tests to measure children's motivation, attitudes, or personality characteristics (usually called "noncognitive measures" or "social and affective measures") are of uncertain validity. Furthermore, it is difficult to assign utility to changes obtained on such indices.

-- There are important limitations to even the most widely accepted of our measuring instruments, the IQ and achievement tests. They give very little useful detail about the programs measured by them. Different tests are only grossly interchangeable with one another. Selection of any particular test involves the acceptance of often-unknown biases favoring some kinds of program activities over other. Generally speaking, existing tests favor programs that directly or indirectly teach the test.

-- Existing tests provide an estimate of individual characteristics. If the issue being addressed by a program is an individual or psychological problem, then testing might find positive benefits. But underlying most public programs for children are purposes that are partly psychological, partly sociological. Testing to date is weak in establishing social or distributional effects.

Existing instruments are, relatively, most adequate for assessing effects on children of early school; next most adequate in assessing preschool effects; and least well developed for the assessment of day care effects in the 0-3 age range. However, our present capacity to assess the effectiveness of intervention anywhere is, at best, argumentative.

Although there is much interest in noncognitive measures, a review of a large number of noncognitive measures shows all presently deficient on basic issues of norming, reliability, and validity. This is of some importance because many project directors of schools and preschools place their faith and their emphasis on goals that are noncognitive.

Many of the limitations of existing tests, particularly limitations on noncognitive testing, reflect limitations of basic theory and conception of the underlying human functions. It is unlikely that we will quickly fill

out our stock of credible program indices by straightforward programs of test or index development.

The most promising approaches to index development right now reflect: (1) an emphasis on process rather than product -- e.g., the "cognitive style" tests; (2) criterion-referenced rather than norm-referenced assessment; and (3) an emphasis on observation rather than testing. With reference to the emphasis on observation, one present scheme of school classroom observation -- the Indicators of Quality instrument -- looks particularly interesting. It is built around professional educators' judgments about what makes up a good classroom environment. It is sensitive (as the achievement test often is not) to factors that educators believe influence school quality. However, its predictive power for the child's later efficacy beyond the classroom has not yet been tested.

Family intervention assists children by influencing their home life. Program goals are either broad attempts to reduce intrafamilial stress through family therapy or social referral, or specific attempts to educate parents about, for example, the nutritional needs of their children or the danger of plumbism. Four types of evaluation have been used to assess the effect of family intervention programs: demographic measures, direct observations, rating schedules, and parent attitude questionnaires. Demographic measures are changes in employment, indebtedness, health status, or utilization of community resources like family planning services. Although easy to gather from census and labor statistics, they are often unreliable. Direct observations of behavioral changes in children or parents are common in evaluating behavior modification intervention. Their weakness is that the change in behavior may be superficial, and not generalizable to other situations. Rating schedules combine demographic data and interviews with family members; their function is primarily to diagnose the difficulties the family is having. Parent attitude questionnaires are of dubious validity, in large part because the reported change in attitude is not necessarily reflected as a change in behavior. More adequate evaluation of family intervention programs will depend on better theories of family functioning and a closer match between program goals and the type of evaluation used.

Chapter 5: Goals and Standards of Programs for Education, Child Development and Family Intervention

This chapter will discuss goals and standards for federal programs concerned to further children's education and development, either directly through work with the child or indirectly through work with the child's family.

The fundamental problem for this discussion is the designation of objective and measurable goals and standards that might serve as a basis for program planning and evaluation.

Legislation authorizing programs for children expresses the general goals of such programs, but those goals are usually given in broad terms and in a long-range perspective. The administrative implementation of a program necessarily involves some interpretation of general goals into more specific, immediate, and concrete terms. When some rigor of program planning and evaluation is to be attempted, this involves severe tests of the ability to "operationalize" goals. What, specifically, should be the criteria for eligibility into a program? How definitely can program guidelines be stipulated? What indices or measures reflect the general conceptions of program issue and program effect? The setting of exact goals and standards is critical both for planning and for evaluation.

There is a nontechnical consensus of psychological understanding that governs most legislation concerning child development. Most people understand that a child is socialized through training and education, that he requires love and affection and care, that his life chances can be damaged by risks to his emotional and physical health. It is this everyday understanding that governs the general goal-setting of program origination. The question to be addressed here is whether it is now possible, through the social sciences, to translate these general conceptions into prescriptive, measurable standards for government programs. Most people today underestimate the difficulty of making such objective estimations in an uncontroversial way. Perhaps because popular psychology is so much discussed in the media, people have become accustomed to hearing fluent discussions of the conditions favorable for human creativity, intelligence, sense of ease and positive self-concept. They are probably less aware than they should be that, in fact, there are serious social science disagreements about the capability to estimate these factors, much less understand their causation. These uncertainties reflect something more than psychometric issues, questions about whether one intelligence test is better than another. They reflect the theoretical primitiveness of most aspects of the research literature on child development. The capacity to translate a great deal of informal wisdom and informal judgment (of the parent and of the teacher) about children into measurable and specifiable criteria does not exist today.

At present, program evaluators can draw from a large stockpile of psychological evaluation instruments. There are many standardized, published tests addressed to a broad spectrum of topics in human competence and performance. Beyond the formal, standardized indices, the basic research literature offers a large mass of informal observational techniques, some of which conceivably could be standardized for use in broad-scale evaluation efforts. There is a large testing industry, capable of fairly quick development of psychometric instruments.

But despite the presence of so much testing capability, serious problems remain in providing measurements and indices to gauge the extent to which programs are accomplishing the social and political purposes that lie behind their creation. The problems are these:

1. Generally, the available psychological tests seem most adequate and trustworthy when measuring the traditional cognitive issues of IQ and school achievement. Tests to measure children's motivation, attitudes, or personality characteristics (usually called "noncognitive measures" or "social and affective measures") are of uncertain validity. Furthermore, it is difficult to assign social utility to changes obtained on such indices.

2. There are important limitations to even the most widely accepted of our measuring instruments, the IQ and achievement tests. They are tests that give very little useful detail about the programs measured by them. Different tests are only grossly interchangeable with one another. Selection of any particular test involves the acceptance of often-unknown biases favoring some kinds of program activities over others. Generally speaking, existing psychological tests favor programs that directly or indirectly teach the tests.

3. Existing tests provide estimates of individual characteristics. If the issue being addressed by a program is an individual or psychological problem, then testing might entail positive benefits. But underlying most public programs for children are purposes that are partly psychological, partly sociological, partly having to do with individual resources and partly with the distribution of resources. Sociological problems are not simple multiples of psychological problems; rather, they are one of those famous wholes that are more than the sum of their parts. This is an abstract point, but it comes up again and again in the concrete puzzles that arise in the establishment of program standards:

-- One well known policy goal recently has been to "equalize educational opportunity" or, more popularly, to "close the gap". Compensatory education programs such as Title I of ESEA are justified under this goal. Suppose that these programs were successful and the scores of low-achievers were elevated. One would still find a gap, but a smaller one. Would this change anything? Is the problem of inequality of opportunity related to an absolute difference in school achievement, or the fact that differentials in school achievement -- differentials of any size -- are used to select children for better jobs and more income? If the latter is true, compensatory education will not equalize opportunity. It is a distributional problem -- the distribution of school achievement and its consequences -- and its solution is being attempted through individual remediation.

-- In a great many instances, there is no absolute definition of what is good or bad in child development, but rather a normative definition. All tests of child development establish "good" and "bad" and "average" levels against norms. If a child's condition is identified as "bad" using the test, and if there is intervention to make it "good", it is implicitly trying to make the below-average child average. Does this make any sense?

-- Not only tests, but existing public services, are geared towards a norm. Schools are designed to deal with a child who has received an average amount of stimulation and an average amount of training in the home. Pediatric practice is geared toward cooperation with parents who will do an expected amount of prevention, diagnosis, treatment, and maintenance work at home. When children are given inadequate educational preparation or inadequate health care in the home, is this always the fault of "deficits" or "deprivations" in the child or his family? Perhaps instead the norm which the institutions are designed to meet should be redefined.

In Chapter 2 the historical development of a set of public purposes for children and their socialization was traced. Although these public purposes often go unstated when goals are put forth for large-scale children's programs, evaluation cannot be limited to the areas of IQ and achievement test measurement merely because the means for assessing other goals -- like child advocacy, community organizing, or strengthening the family -- do not currently exist.

What are the issues beyond the development of individual characteristics measured by IQ, achievement, and personality tests? Table 5.1 offers a sketch of a more comprehensive description of the goals now being sought by a variety of public programs now extended to children. These are major overriding goals -- broad themes, which would have to be elaborated into subgoals, indices, and measurements before they could be of use in the evaluation of projects for children. The table says that public programs are characteristically "overdetermined". Consequently, there may be much to be measured and much to be considered in deciding on the adequacy of the services provided by a particular program to its constituent children.

TABLE 5.1

Services of Programs for Children

Early Schooling, Grades K-3

1) To initiate vocationally-directed training in word and number symbol systems -- that is, to initiate the literacy generally required for vocational and political participation in a developed society.

2) To initiate socialization into the industrial and political community via what is sometimes called the "hidden curriculum"; to habituate the child to a bureaucratic environment governed by rules and schedules; to communicate normative mores, attitudes, and beliefs for society as a whole; to provide a social pattern for the accommodation of majority and minority feelings, probably the social pattern generally characteristic of the social system as a whole.

3) To provide daytime child care -- thus to release the mother for work, possibly also to reduce family stress.

4) To do some health monitoring; to provide, at times, some nutritional assistance; to make some adjustments to accommodate training for children with some kinds of handicaps.

Preschools

1) To enhance children's later success in school; to enhance children's liking of school.

2) (For Head Start as a Community Action Program) To serve as a source of advocacy within the community to stimulate adjustments and extensions of community services to disadvantaged children.

3) To provide part-day child care -- thus to reduce family stress; to screen for family problems that might require social services (the latter particular to Head Start).

4) (For Head Start) To screen for health problems, and initiate needed services; at times, to provide nutritional assistance.

Day Care - Custodial

1) To provide daytime child care -- thus to release the mother for work, possibly also to reduce family stress.

TABLE 5.1 (continued)

Day Care - Developmental

1) To provide the range of services described above for Head Start preschools, with the addition of full-day child care and the release of the mother for work.

Family Intervention

1) To enhance the family's role in supporting the child's education.

2) To enhance the family's ability to support the child's political socialization.

3) To enhance the family's cooperation with health services in preventing handicap; to enhance the family's ability to help the child if handicap occurs.

Many of the goals may be implicit or secondary. For example, the functions of public schooling generally are not seen today as providing for labor regulation, and that function is not made an issue in the evaluation of educational programs for children. Yet historical examination shows that labor regulation was an important issue in the development of public schools; undoubtedly, proposals calling for a drastic reduction in the supply of public schooling would resurface the issue.

However, even a restriction of discussion to program goals that are made explicit and considered primary will usually still reveal a multiplicity of program goals. Consider, for example, the goals of Head Start as stated in the program guidelines:

> 1) Improve the child's physical health and physical abilities.
>
> 2) Help the emotional and social development of the child by encouraging self-confidence, spontaneity, curiosity and self-discipline.
>
> 3) Improve the child's mental processes and skills with particular attention to conceptual and verbal skills.
>
> 4) Establish patterns and expectations of success for the child which will create a climate of confidence for his future learning efforts.
>
> 5) Increase the child's capacity to relate positively to family members and others while at the same time strengthening the family's ability to relate positively to the child and his problems.
>
> 6) Develop in the child and his family a responsible attitude toward society, and foster constructive opportunities for society to work together with the poor in solving their problems.
>
> 7) Increase the sense of dignity and self-worth in the child and his family.
>
> (Bureau of Head Start and Early Childhood, 1969)

This common multiplicity of program goals, and our limited technological ability to "operationalize" them, must constantly be held in mind as one considers issues of program goals and program standards. What follows is a review of present measurement capability for programs in education, child development, and family intervention. The developed instruments are considered, and some consideration is given to present efforts to enlarge measurement through development of further instruments. It is useful to consider the instruments, since clearly some useful program evaluation is achievable through their use. The use must be judicious, and balanced by the realization that programs cannot be viewed only through selected, narrow windows.

The discussion is divided into five sections. Four sections deal with measures of children now used in project evaluation or potentially applicable to it. These sections cover: (1) taxonomies by which the instruments may be classified; (2) issues in the development of standardized tests; (3) a survey of cognitive and noncognitive instruments currently in use; and (4) recommendations of other approaches to the evaluation of individual characteristics. The tests surveyed in the first four sections are those now used to evaluate day care, preschool, and early elementary education projects. The fifth and final section then considers instruments now used for the evaluation of family intervention projects.

The Classification of Evaluation Instruments

Instruments used to measure changes in individual children as a result of an intervention program rest on the assumption that human beings are characterized by a set of abilities, traits, or skills -- e.g., "intelligence", "creativity", "motivation", "reading comprehension", "auditory discrimination". One can classify such instruments in two ways: (1) by assimilating the tests into some categorization of human abilities, traits, or skills; or (2) by functionally relating the tests to different purposes in testing and different uses of the results.

Taxonomies Based on Categorizations of Human Characteristics

The first attempts to set up a detailed taxonomy (list) of educational objectives were made by Bloom (1956) and Krathwohl et al. (1964). They proposed the existence of three "domains" -- cognitive, affective, and psychomotor -- in the classification of educational objectives. To date, they have developed taxonomies only for the cognitive and affective domains (Bloom, Hastings, and Madaus, 1971). Their taxonomy is shown in Table 5.2. It is not a taxonomy of existing tests, but rather a projection of a future taxonomy into which existing and future tests might reasonably be placed.

Buros' manual (1965), the best known reference on tests and measurements, divides tests into 15 major categories of behavior (Table 5.2), according to what the test seems to measure. About one-quarter of these categories are noncognitive; most of the categories are for achievement-oriented tests. Johnson and Bommarito (1971) separate child development measures into ten categories, many of which are overlapping (Table 5.2). For the classification of tests for preschool and kindergarten, Hoepfner, Stern and Nummedal (1971) have offered a scheme similar to the older one of Bloom and his associates. For the classification of elementary school tests, Hoepfner et al. (1970) chose a list of 41 main categories of which five are noncognitive (Table 5.2).

This brief survey of classification schemes illustrates a major difficulty in test usage. The classification schemes differ, but the differences seem to be somewhat arbitrary and more intuitive than empirical. Ideally,

TABLE 5.2

Major Classificatory Schemes for Measurements

Bloom, Krathwohl and Associates
(1956, 1964, 1971)

Taxonomy of Cognitive Domain

- 1.00 Knowledge
  - 1.10 Knowledge of specifics
  - 1.20 Knowledge of ways and means of dealing with specifics
  - 1.30 Knowledge of the universals and abstractions in a field
- 2.00 Comprehension
  - 2.10 Translation
  - 2.20 Interpretation
  - 2.30 Extrapolation
- 3.00 Application
- 4.00 Analysis
  - 4.10 Analysis of elements
  - 4.20 Analysis of relationships
  - 4.30 Analysis of organizational principles
- 5.00 Synthesis
  - 5.10 Production of a unique communication
  - 5.20 Production of a plan or proposed set of operations
  - 5.30 Derivation of a set of abstract relations
- 6.00 Evaluation
  - 6.10 Judgments in terms of internal evidence
  - 6.20 Judgments in terms of external evidence

Taxonomy of Affective Domain

- 1.00 Receiving (attending)
  - 1.10 Awareness
  - 1.20 Willingness to receive
  - 1.30 Controlled or selected attention
- 2.00 Responding
  - 2.10 Acquiescence in responding
  - 2.20 Willingness to respond
  - 2.30 Satisfaction in response
- 3.00 Valuing
  - 3.10 Acceptance of a value
  - 3.20 Preference for a value
  - 3.30 Commitment
- 4.00 Organization
  - 4.10 Conceptualization of a value
  - 4.20 Organization of a value system
- 5.00 Characterization by a value or value complex
  - 5.10 Generalized set
  - 5.20 Characterization

TABLE 5.2 (continued)

	Buros (1965)
Achievement batteries	
Business education	
Character and personality	
English	
Fine arts	
Foreign languages	
Intelligence	
Mathematics	
Miscellaneous	
Multi-aptitude tests	
Reading	
Science	
Sensory-motor	
Social studies	
Vocations	

TAPLE 5.2 (continued)

Johnson and Bommarito
(1971)

Category 1 - Measures of cognition

1. Intelligence and school readiness
2. Language and number skills
3. Specific achievements
4. Cognitive style and processes
5. Miscellaneous

Category 2 - Personality and specific emotional characteristics

1. Personality - general
2. Personality variables
3. Personality adjustment
4. Anxiety

Category 3 - Attitudes of children toward parts of the environment

1. Attitudes toward adults
2. Attitudes toward peers
3. Other factors

Category 4 - Measures of self-concept

Category 5 - Characteristics of the environment

1. Quality of mothering
2. Child-rearing practices
3. Attitudes of parents toward school

Category 6 - Psychomotor measures

1. Motor skills
2. Brain injury
3. Sensory perception

Category 7 - Physical attributes

Category 8 - Attitudes and other interests

Category 9 - Social behavior

Category 10 - Unclassified

TABLE 5.2 (continued)

Hoepfner, Stern, and Hummedal:
Preschool and Kindergarten Goals
(1971)

Affective Domain

1. Development of personality
2. Development of social skills
3. Development of motivation for learning
4. Development of aesthetic appreciation

Intellectual Domain

5. Cognitive functioning
6. Creativity
7. Memory

Psychomotor Domain

8. Physical coordination

Subject Achievement Domain

9. Arts and crafts
10. Foreign language
11. Function and structure of the human body
12. Health
13. Mathematics
14. Music
15. Oral language skills
16. Readiness skills
17. Reading and writing
18. Religion
19. Safety
20. Science
21. Social studies

TABLE 5.2 (continued)

Hoepfner, Strickland, Stangel, Janse, and Patalino:
Elementary School Goals
(1970)

Affective
1. Temperament: personal
2. Temperament: social
3. Attitudes
4. Needs and interests

Arts-Crafts
5. Valuing arts and crafts
6. Producing arts and crafts
7. Understanding arts and crafts

Cognitive
8. Reasoning
9. Creativity
10. Memory

Foreign Language
11. Foreign language skills
12. Foreign language assimilation

Language Arts
13. Language construction
14. Reference skills

Mathematics
15. Arithmetic concepts
16. Arithmetic operations
17. Mathematical applications
18. Geometry
19. Measurement

Music
20. Music appreciation and interest
21. Music performance
22. Music understanding

Physical Education - Health - Safety
23. Health and safety
24. Physical skills
25. Sportsmanship
26. Physical education

Reading
27. Oral-aural skills
28. Word recognition
29. Reading mechanics
30. Reading comprehension
31. Reading interpretation
32. Reading appreciation and response

TABLE 5.2 (continued)

Religion
- 33. Religious knowledge
- 34. Religious belief

Science
- 35. Scientific processes
- 36. Scientific knowledge
- 37. Scientific approach

Social Studies
- 38. History and civics
- 39. Geography
- 40. Sociology
- 41. Application of social studies

a classification scheme should consist of mutually exclusive and exhaustive categories. Every test should be classifiable into one appropriate pigeonhole. But it is undoubtedly true that all classification systems are conveniences. Their arbitrariness reflects the fact that it is not usually known how much differences among tests represent differences among their assigned names, as opposed to real differences among the aspects of human behavior they assess. There are statistical techniques for deciding whether tests are distinct in their measurement function, but when such statistical techniques are applied, rarely does one test prove to be completely distinct from another. We make our distinctions among psychometric tests largely on the basis of a face-valid appearance of distinctness. The intuitions upon which functions seem distinct are not very sophisticated or educated. We now partition human characteristics using distinctions between thinking and feeling, seeing and knowing, etc, which are old and conventional. Psychological theory regularly exposes the conventional categorizations of human functions as shallow, but it has not so far permitted us to form better and more analytic categorizations.

For our discussion of evaluation instruments, we will use a convenient and conventional kind of scheme which enlarges the Bloom model of three domains (one cognitive and two non-cognitive) into four (see Table 5.3). The cognitive domain has been subdivided into "cognitive" and "content competence" measures to make the distinction between content-free abilities or intellectual styles, and acquired skills or factual knowledge. This distinction between capacity and achievement is convention, although questionable in view of the cultural biases in capacity tests. For this reason, some now call the IQ test a "generalized achievement test" to avoid the distinction. Nevertheless, it seems reasonable to separate generalized and specific achievement tests -- what we call "cognitive" vs. "content competence" tests -- because, in fact, these two kinds of tests are used to make different kinds of inferences about the projects to which they are applied.

Taxonomies Based on Purpose of Evaluation

A different and more complex breakdown of testing, which takes into account the content of tests, their purpose, and time of testing, has been developed by Bloom et al. (1971). It applies to educational testing and illustrates a regimen of testing that might have to be applied, at least in experimental projects, for a fully informed system of project evaluation. Bloom and his associates differentiate three phases of decision making:

(1) Diagnostic -- to determine what the child's skills, knowledge, or abilities are.

(2) Formative -- to isolate which parts of a body of knowledge (or which steps in learning a skill) the child has not yet mastered.

(3) Summative -- to certify the acquisition of a body of knowledge or skill.

TABLE 5.3

Classification of Child Development Measures

Noncognitive Domain

Psychomotor

1. Physical coordination
2. Physical attributes
3. Sensory attributes
4. Diagnostic tests

Socio-Emotional

1. Self-concept
2. Social skills
3. Attitudes
4. Interests
5. General personality and emotional adjustment
6. Personality variables
7. Characteristics of the environment

Cognitive Domain

Cognitive

1. IQ
2. Piagetian
3. Observation scales of attention span, exploratory behavior, etc.
4. Cognitive style profiles

Content Competence

1. Achievement tests
2. Criterion-referenced tests

A more complete comparison of the three types of evaluation is given in Table 5.4.

Although throughout this report we use the terms measurement, evaluation, and assessment interchangeably, it is important to note that a theoretical distinction can be made which has practical implications (Bloom, 1968). Measurement assumes that certain constant characteristics -- such as IQ or memory -- can be measured in all people so that they can be compared regardless of background or situation. Evaluation is a less static term; evaluative testing attempts to observe a prescribed change in an individual, and to use the results to foster further change. It rests on some simple or complex definition of a desired change. Assessment instruments are based on a theory or construct of human behavior, the validity of which -- construct validity -- depends on how well the theory explains interactions between the individual and the environment.

Summative instruments operate on Bloom's measurement principle. Diagnostic and formative instruments -- to the extent their results are employed to promote the child/student's competence in some skill or area -- operate as evaluators. In practice, diagnostic/formative/ summative (measurement and evaluation) instruments are usually used as a means of categorizing individuals or programs. The alternative, assessment, is a relatively new concept, brought about by observation scales of peer, parent/child, and pupil-teacher interactive behavior. Because of our inadequate understanding of personality and its development, models or constructs are seriously lacking for these scales.

Standardized tests are widely used for summative evaluations of preschool and early elementary school performance. The majority of such tests assess cognitive capabilities and achievements. Noncognitive instruments are still largely unstandardized. The psychometric issues described below apply equally well to cognitive and noncognitive measures. There are three principle issues: norming, reliability, and validity.

Norming Procedures and Normative Scores

A test is norm-referenced when an individual's score is compared to the distribution of scores on the test of a large number of individuals, known as the norming sample. Norming relates an individual "raw" score to a population distribution of raw scores and, through norming, it is established that an individual's performance is average or below or above average. Good norming is difficult; many existing tests are subject to questions about how the norming sample was determined and obtained, and how normative scores are used to interpret a student's performance.

Lennon discusses the seriousness of these points:

> There are good reasons for supposing that differences in norms ascribable simply to ... variations in norming procedures are not negligible. When we consider that to

TABLE 5.4

Similarities and Differences between Diagnostic, Formative, and Summative Evaluation

	Type of Evaluation		
	Diagnostic	Formative	Summative
Function	Placement: Determining the presence or absence of prerequisite skills Determining the student's prior level of mastery Classifying the student according to various characteristics known or thought to be related to alternative modes of instruction Determination of underlying causes of repeated learning difficulties	Feedback to student and teacher on student progress through a unit Location of errors in terms of the structure of a unit so that remedial alternative instruction techniques can be prescribed	Certification or grading of students at the end of a unit, semester or course
Time	For placement at the outset of a unit, semester or year's work During instruction when student evidences repeated inability to profit fully from ordinary instruction	During instruction	At the end of a unit, semester or year's work

TABLE 5.4 (continued)

	Type of Evaluation		
	Diagnostic	Formative	Summative
Emphasis in evaluation	Cognitive, affective, and psychomotor behaviors Physical, psychological, and environmental factors	Cognitive behaviors	Generally cognitive behaviors; depending on subject matter, sometimes psychomotor; occasionally affective behaviors
Type of instrumentation	Formative and summative instruments for pre-tests Standardized achievement tests Standardized diagnostic tests Teacher-made instruments Observation and checklists	Specially designed formative instruments	Final or summative examinations
How objectives of evaluation are sampled	Specific sample of each prerequisite entry behavior Sample of weighted course objectives	Specific sample of all related tasks in the hierarchy of the unit	A sample of weighted course objectives

TABLE 5.4 (continued)

Type of Evaluation

	Diagnostic	Formative	Summative
How objectives of evaluation are sampled	Sample of student variables hypothesized or known to be related to a particular type of instruction Sample of physically, emotionally, or environmentally related behaviors.		
Item difficulty	Diagnosis of prerequisite skills and abilities: a large number of easy items, 65% difficulty or higher	Cannot be specified beforehand	Average difficulty ranging from 35% to 70% with some very easy and some very difficult items
Scoring	Norm and criterion-referenced	Criterion-referenced	Generally norm-referenced but can be criterion-referenced
Method of reporting scores	Individual profile by subskills	Individual pattern of pass-fail scores on each task in the hierarchy	Total score or subscores by objectives

(Bloom et al., 1971, pp. 91-92)

> such differences from test to test there must be added differences associated with varying content, and with the time at which standardization programs are conducted (including the time of the school year), the issue of comparability, or lack of it, among the results of the various tests may begin to be seen in proper perspective. Empirical data reveal that there may be variations of as much as a year and a half in grade equivalent among the results yielded by various achievement tests; variations of as much as 8 to 10 points of IQ among various intelligence tests are, of course, by no means uncommon. (Cited in Mushkin, 1971, p. 11)

The norming procedures of the standardized test manufacturers tend to emphasize the number of children in the sample rather than the sample's representativeness. For norms to be representative, the national proportions of races, SES groupings, sexes, and so on should be reflected in the norming sample; ideally, it should approximate a random sample of the entire age population in question. Most norming samples, however, end up being a large number of "average" or "typical" students. Often, characteristics of the norming sample are not truly reported. The sample for the Stanford Achievement Test, for example, consisted of 850,000 students (nearly 100,000 per grade). However, no information regarding the stratification of the sample is given, beyond that it is a reflection of "pupils in average daily attendance in public and private schools throughout the country". Many test developers obtain the population for their norming samples from the U.S. Office of Education's Education Directory. The directory only lists public school districts enrolling more than 300 students. This excludes from the population all private and parochial school students as well as 4% of all public school students and 56% of all school districts (i.e., small rural districts).

Test publishers depend on the cooperation of school systems in forming norming samples. Even if the initial sample is well-stratified, the final one may be severely biased because of this self-selection. When the Cooperative Primary Tests were normed, for instance, less than 38% of the initially-chosen school districts accepted an invitation to be part of the sample (Cooeprative Primary Tests Handbook, p. 56).

Intentional restriction of the norming sample also occurs. The procedure used in obtaining the norming sample for the Illinois Test of Psycholinguistic Abilities is suggestive of this (Paraskevopoulos and Kirk, 1969). "Average communities" were selected (viz., Bloomington, Danville, Decatur and Urbana, Illinois, and Madison, Wisconsin); "middle-range" school districts identified within these (i.e., Negro enrollment less than 10%; families predominantly middle-income, as judged by school officials); and "average" children from these schools (those English-speaking children within one standard deviation of the mean on the Stanford-Binet IQ test), constituted the sample. At each state of the selection procedure there was an effort to norm the test on mid-range children. However, the ITPA is now administered to children of all ethnic backgrounds and IQ scores. To perform well they must function as the original norming group did.[13]

Normative scores are an interpretation of raw scores in percentile terms. (A percentile is a numerical expression of an individual's ranking in a group -- e.g., a student in the 90th percentile on a measure would be one whose performance exceeded that of 90% of other students on that measure.) Percentiles are often translated into age and grade equivalent scores. Age equivalent scores are used with mental abilities tests, grade equivalents with achievement tests. Cronbach, among others, has argued against the use of equivalent scores:

> In the writer's opinion, grade conversions should never be used in reporting on a pupil or a class, or in research. Standard scores or percentiles or raw scores serve better. Age conversions are also likely to be misinterpreted. A 6-year-old with mental age 9 cannot pass the tests a 12-year-old with mental age 9 passes; the two simply passed about the same fraction of the test tasks. On the whole, however, age equivalents cause less trouble than grade equivalents, if only because the former are not used for policy decisions in education. (Cronbach, 1970, p. 98)

The principal issues in norming arise out of the fact that this aspect of test development sets the stage for the judgment of children according to some public or near-public standard. Through the norming we establish the basis for saying that a child is "high" in intelligence, "retarded" in development, "non-anxious", and so on. Possibilities of libel occur (although not necessarily in the strict legal sense). A rural child will often learn a different vocabulary and a different subset of facts about the world than will an urban child. When the rural child is faced with an IQ test norm-referenced to urban children, this simple difference in his background will be translated into "less measured intelligence". A number of subpopulations of children -- rural children, bilingual children, children from distinctive subcultural backgrounds -- run the risk of such unfair labelling when they confront imperfectly normed instruments.

One can reasonably trust the conclusions of most existing standardized tests when such tests are used with children from what we might now regard as a standard urban or suburban milieu. When the milieu is distinctive, "different", the fairness of a test can only be estimated through some consideration of the match or mismatch between the norming and the milieu.

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[13] A relevant norming population of a reading test for children with perceptual difficulties would not primarily include children with normal vision. Conversely, the norming sample for a standardized achievement test used nationwide would not be limited to middle-class white children, but would reflect the class, ethnic, etc., composition of the children of the country as a whole.

Reliability

Reliability measures indicate the consistency with which a given test score can be obtained. Reliability scores tend to be high when test scores are relatively insensitive to circumstances of time, place, and atmosphere. If a test score is reliable, it will recur.

Alternate form and split-half reliability is obtained by correlating two different sets of items given to the child. Do two tests of the same characteristic of the child come up with the same assessment of him? Test-retest reliability is obtained by correlating a test score with another test score obtained at a later time. Is the assessment of the child stable over time? It is not always true that test-retest reliability, indicating trait stability, is desirable for a child. In many intervention programs, learning, development, or change in the child are sought so that stability of test scores would not be wanted.

Most published tests have reasonably acceptable alternate form or split-half reliability, with correlation values running between .7 and over .9. However, not all tests have high reliability, particularly the tests for social and emotional characteristics.

When there are ratings, observations, or judgments of the child involved in project evaluation, questions of interobserver reliability arise. In all these cases, someone is making a judgment about some small or large segment of a child's behavior. The program for observation may be so carefully worked out that the observer is asked to count incidents on which two observers would rarely disagree -- e.g., number of times one child initiates a conversation with other children, number of times one child hits another. For such programs, two independent observers will often make independent observations that will correlate at better than .9. At the other extreme, there are programs in which two teachers knowing the same children will be asked to rate the children as to whether they are on the whole "shy" or "happy" without much definition of the terms. Interobserver reliabilities can then fall in .3 showing a pattern of agreement that may not be random but that is, on the whole, so vague as to be of little use.

Reliability is usually a serious issue for estimates of a child's status that depend on observations or ratings or judgments. This is particularly true because observational estimates tend to be employed to get at program features that can only be detected through human judgment. With careful work on the observational program, interobserver reliabilities can often be brought to a level that is considered acceptable for observational work, between .6 and .8 correlation between observers.

Validity

A valid test measures what it purports to measure. During the process of validating a test, test scores are correlated against a criterion, or criteria, presumed to define the trait or characteristic the test seeks to measure. If the test scores correlate well with the criterion, they may thereafter stand as a proxy for the criterion. The major issue in validating tests has to do with whether criteria exist that will be universally acceptable as standards against which to validate. If such criteria do not exist, or if people disagree about them, it may be difficult or impossible to establish test validity.

What does a test test? The quickest way to estimate this is to look at the test items and try to judge what they get at. If a test contains items that ask the child to detect analogies, solve deductive problems, express knowledge about information, etc., we may decide that the test gets at intelligence. The test may contain agree-disagree items, like "My palms sweat more often than do those of other people", and "I am often uncomfortable and ill-at-ease in the company of other people." We may judge that it looks like a test of "anxiety" or "adjustment". In these cases, the test is assigned face validity.

Face validity is considered a very judgmental and unsatisfactory level of validity for a test. But it must be recognized that a number of existing tests rest on nothing, or little more than, face validity. The more technical and empirical techniques for establishing test validity may still depend upon second-order issues of face validity. Validation consists of seeing whether test scores predict other criteria. Unless those criteria can be agreed upon as standards, the validity of the test is not agreed upon.

Some examples will illustrate this issue:

-- The testing procedures established by Alfred Binet in France in the early 1900's have set the standard for what we today call tests of intelligence. Binet's test was developed in response to a request from a French commission concerned that some objective way be found to separate out children unable to profit from instruction. When we today show a strong correlation between IQ tests and school achievement, we are basically retrieving the historical fact that IQ tests were originally tests designed to predict school performance. Are we willing to accept school performance as the defining standard for human intelligence? To the extent that we are not, we are holding the IQ test to be invalid.

-- In order to validate a test for how well-adjusted a child is, there is a choice among plausible criteria which conflict. It might be acceptable to validate a test against psychiatric ratings of adjustment-maladjustment of children. Alternatively, it could be validated against teachers' ratings of the child's adjustment. Teachers tend to single out the aggressive, acting-out child as maladjusted, while psychiatrists tend to single out the withdrawn, passive child as maladjusted. The test might be validated by seeing whether it can pick out children presently in therapy from those who are not. This will miss some kinds of children whom teachers and psychiatrists would agree are maladjusted. Whichever standard is selected for validation, a standard will result that some people feel gives wrong answers about children. Because people disagree about which children are maladjusted it is impossible to definitively validate a test of children's adjustment.

Most tests in wide use today are at what one might call a middling level of validity. They have been correlated against a fairly acceptable criterion. They offer rankings of children that are meaningful if they are used to make a gross non-binding estimate of the child, but are of debatable value if they are used to make serious decisions about the child, or if they are used to make "accountability" decisions about the effects of a program on a child.

Achievement testing is another example. The teacher has stressed certain concepts on a given subject, and wishes to determine how well the class has assimilated the material. A nationally standardized achievement test is used. If the teacher is lucky, the instructional materials used were the source of the test items. However, this is usually not the case, meaning that such a test's validity depends on the extent to which the test designer's objectives matched those of the teacher.

The Standards for Educational and Psychological Tests and Manuals (1966) list three types of validity -- content, criterion-related, and construct. Content validity is essential to achievement tests; a reading test should measure a student's ability to read. Sometimes content validity is equated with fact accumulation:

> A test can easily become overloaded with those aspects of the field that lend themselves more readily to the preparation of objective items . . . . Content must . . . be broadly defined to include major objectives, such as the application of principles and the interpretation of data, as well as factual knowledge. (Anastasi, 1868, p. 100)

In criterion-related or predictive validity, the test is correlated with some external criterion. There are two kinds, concurrent and predictive. A reading test, for example, has concurrent validity if it accurately identifies good and poor readers. It has predictive validity if it can separate those who will have reading problems in the future from those who won't.

A test possesses construct validity to the degree to which its properties accord with those of a theoretical construct. An elaborated theory of intelligence might propose a series of standards for a test that might be non-intuitive or counter-intuitive. To the extent that a test correlated with such standards, it would be said to have construct validity. Construct validity is of great interest theoretically, because it takes issues of validity furthest away from dependence on raw human judgement and face validity. But in order to make use of construct validity, theories must be strong enough to be 'face valid' as theories. There are no such psychological theories for the major topics that are of issue in the evaluation of government projects.

Two further issues may be mentioned in connection with test validity. Validity may depend upon moderator variables -- for example, sex is a moderator variable in a test which has higher predictive validity for women than men. Frequently-occurring moderator variables for existing tests are interest, motivation, and SES. There may also be suppressor variables:

> For example, reading comprehension might correlate highly with scores on a . . . mechanical aptitude test, because the test problems require the understanding of complicated written instructions. If reading comprehension is irrelevant to the job behavior to be predicted, the reading comprehension required by the test introduces error variance and lowers the predictive validity of the test. Administering a reading comprehension test and including scores on this test in the regression equation will eliminate this error variance and raise the validity of the battery. The suppressor variable appears in the regression equation with a negative weight. Thus, the higher an individual's score on reading comprehension, the more is deducted from his score on the . . . mechanical test. (Anastasi, 1868, p. 148)

It has been suggested that cultural and language factors in testing children might be treated as suppressor variables. The score on the reading subtest of an achievement battery might be used to balance the scores of native and non-native English-speaking children on the remainder of the battery. However, purely statistical solutions to problems of test validity are at best argumentative because so many problematic assumptions have to be made to attempt such solutions.

On the whole, existing testing instruments for project evaluation are useful providing issues of norming, reliability and validity are taken into account.

1. The major issues in the construction of a test -- norming, reliability, and validity -- can be reasonably evaluated using data. Test developers usually, though not always, furnish the kinds of information that allow one to make an assessment of the adequacy of the test.

2. Most standardized tests are normed reasonably well on a modal, middle-range American population. Questions about norming arise when tests are used to evaluate children from unusual cultural backgrounds. This is often the case in intervention projects. Then utility of a norm-referenced text can only be estimated by a consideration of the test norms, the special project, and the purpose of the testing.

3. Most standardized tests are accompanied by reports about reliability, and reported reliabilities of tests usually show adequacy. Where reliability of a measure tends to become a serious issue is in ratings, judgments, and observations of children. Because so many projects are concerned about social and emotional effects on children -- effects on the child's self-concept, happiness with school, sense of ease, etc. -- there is a growing tendency to

invent judgment or observation procedures to get at these effects. It takes some work to get judgments of these factors reliable across observers, and this work is not always done.

4. The most sensitive question about existing tests arises around validity. No matter how a test is labelled, its real meaning must come through validity studies. We must know what the test predicts in order to understand what it tests. One reason why IQ and achievement tests are so widely used is that, through correlations with a number of other positive aspects of children's growth and development, these instruments have attained a kind of social credibility and utility. Almost all other instruments have weaker proof of validity.

5. When a test is problematic, established standards for reporting of norming, reliability, and validity will generally bring about a fairly clear picture of what the problems are. Perhaps the most serious problem, then, arises from the fact that many users of tests are insufficiently worried about the possibilities of problems. It is fairly common to see tests treated as absolute, universal, stable measures of whatever their label seems to imply when, in fact, very few existing instruments can even begin to make a claim for full adequacy in those respects.

Child Measures Presently in Use

Overview

The following broad pattern of testing is found at the day care, preschool, and elementary school levels:

Day Care. Day care projects concerned with the stimulation of the child in the 0 - 3 age range use a variety of standardized and unstandardized instruments. Toward the lower ages, infant tests of development are used, often yielding a Development Quotient (DQ) Score. At the upper end of the range, IQ tests begin to be available. These are the standardized instruments. Nonstandardized instruments include Piaget-based attempts to estimate progress through substages of sensorimotor development. Day care addressed to cognitive infant stimulation is relatively new, and to date there is no serious concern for noncognitive measures of emotion and affectivity. A miscellany of ad hoc experimental procedures for dealing with various aspects of infant attention, emotion, sociability, and motor development have been used in the experimental day care centers. Such indices may be the embryonic development of this testing area.

Preschool. Projects involving preschools are generally assessed using an IQ test, or some broad-gauge test of language development (like the Illinois Test of Psycholinguistic Ability) designed to get at the child's progress in a variety of speech and language functions. The latter have such high correlations with IQ tests as to be, functionally, IQ instruments. This refers to the testing immediately around the preschool experience, the pre-test and the immediate post-test. Sometimes there is follow-up evaluation of the preschool experience through subsequent testing of the children with achievement measures while they are in the early grades of school. At the preschool level, and later on, there is use of noncognitive instruments. Most of the noncognitive instruments are unstandardized and must be regarded as exploratory or experimental.

Elementary Education. Projects in elementary education are generally assessed using one of a limited set of national standardized achievement tests, giving a score usually expressed as a grade point average. In addition, there is occasional use of tests designed to measure factors like motivation for schooling, happiness, adjustment or anxiety. These noncognitive measures are rarely national standardized instruments; rather, they are often local and homemade for the project.

Cognitive Measures for Young Children

Present standards for the cognitive development of young children are in the tradition of mental testing which has given rise to IQ and achievement tests. Although the goals of IQ and achievement tests are different -- the one to assess aptitude for learning, the other to measure acquired knowledge -- the tests themselves are not dissimilar. In this section we consider first the history and purposes of IQ and achievement testing, and then the instruments used in evaluating cognitive development in day care, preschool, and early elementary school programs. The instruments were selected on the basis of (1) use by those programs discussed in Part II of this report, and (2) those cited by Educational Testing Service as the most frequently used by people consulting their test files.

IQ Tests. These tests are generally spoken of as 'intelligence' tests, and as intelligence tests they have had a long and somewhat colorful history. There have been three periods in the development of intelligence testing -- first, when intelligence testing was pursued unsuccessfully through various combinations of sensory and motor tests; a second period when Alfred Binet's invention of the 1900's first achieved scientific and popular acceptance as a measure of intelligence, and gradually became the basis of an elaborated and differentiated technology of intelligence testing; and a third period, beginning in the 1930's, when the notion of a generalized human intelligence gradually gave way -- although never completely -- to a notion of human capacity as a series of semi-independent, factorially differentiated, special intelligences.

In the 1870's and 1880's, the notion of intelligence testing developed in close conjunction with evolutionary thinking. Herbert Spencer, the evolutionary philosopher, coined the term 'intelligence' to characterize some essence that increased as one moved up his evolutionary tree that culminated in Homo Sapiens. Sir Francis Galton originated efforts to test it. Galton was an ingenious British amateur scientist who published on a wide variety of topics; but all of his efforts grew out of an interest in establishing what we today know as eugenics -- control of human breeding to improve human stock or, as Galton thought of it, the imposition of scientific planning and control on the progress of human evolution. Because he needed indices of quality of human stock, Galton was a fertile inventor of techniques in anthropometric and psychometric measurement; he initiated a large scale survey of British men and women's measurements, and he invented various statistical techniques. The direction of all these efforts was probably toward a utopian conception privately published by Galton. He invented a land, "Kantsaywhere", in which young men and young women collected points for outstanding accomplishments -- feats of scholarship, athletics, leadership, outstanding skills -- and in which permission to marry and permission to breed was only given contingent on proper point-counts.

To establish his tests, Galton used the psychological laboratory of his day, which was largely concerned with measurements of sensory capacity and whith speed of motor reaction time. Supposedly such measurements reflected the efficiency of the nervous system, brainpower, and thus intelligence. (Montessori established her preschools in the context of the same body of psychological work, which explains why her preschool curriculum has so characteristically centered on sensory training.) Galton's ad hoc procedures were eventually collected into a formal but unseccessful test battery by an American, James Cattell, in the 1890's. The rather brief testing procedures applied by Cattell were insufficient to establish reliability of measurement, but while Cattell's approach to mental testing was to be discredited and replaced by Binet's work, there is not proof that his approach could not work. There are today some tests of children's psychoneurological development (such as the Meeting Street School Test) which use assessment items that are more like Cattell's items than Binet's, and which do at least as well as -- perhaps slightly better than -- the IQ test in the psychometric prediction of early school performance.

The second wave of testing followed upon the successful development of a school prediction instrument by Binet and Simon in 1904-1905, in response to the request of a French commission concerned to have an objective instrument that might separate out first graders who were unable to profit from instruction -- i.e., who might today be considered to be functionally retarded children. The test was, fundamentally, a variegated test of 'judgment'; this was the claim of Binet and Simon in their original papers describing the test although, in truth, a modern psychologist would not be inclined to see the test items as unified under that term. It is important to understand that this early test, almost 70 years ago, looks very much like the Stanford-Binet test used today, despite the different statistical technology used in the development and standardization of the present American descendent of the Binet. Did Binet and Simon develop their test as a test of intelligence? It is not clear. In 1894 and 1895, Binet and his colleague began publishing basic studies of children's intellectual development -- studies not too different in approach and style from the early studies of Piaget -- and it was clear in this early era that Binet was working towards 'mental testing' and 'intelligence'. The terms were used fairly interchangeably. But Binet and Simon did not compute an 'intelligence' from their school selection test. They computed a 'mental age'. It was only several years later that another psychologist suggested that one might divide a child's mental age by his chronological age and arrive at an 'intelligence quotient'. Thus, as a kind of afterthought, the instrument became a measure of intelligence.

All through this early period, no one knew what human intelligence was. It was something mental and special to humans. Various verbal definitions appeared and disappeared. Various theories were expounded. In plain fact, the theoretical justification for any test of intelligence was weak: it looked "face valid" to other psychologists. The empirical validation for any test of intelligence was just as weak: it predicted school performance. After the Binet instrument came into use, it served as a validation standard for newer instruments, and the newer instruments did so for still newer ones. That state of affairs persists unchanged today. Essentially, the technology of intelligence testing is a bootstrap operation in which tests become acceptable because they look like intelligence tests, because they correlate with school or school-related criteria, or because they correlate with other tests.

What seems to have happened is that a fairly plain, reasonably useful personnel selection device became loaded with intellectually and emotionally charged meanings. It was believed that a general human intelligence ought to exist. Spearman's argument that there is a general ("g") factor in human competence lent scientific weight to the belief. The belief in intelligence testing appears to have been socially useful in an ideological sense, which may explain its strength. The first widespread intelligence testing, Army Alpha and Beta tests of World War I, revealed a substantial correlation of test-score rankings with income and status rankings of various professions in American life. The correlation was by no means perfect, nor is it perfect today. But it was possible to believe that intelligence explained the social order of life, why the rich were rich and the poor were poor.

During the 1920's and 1930's, American psychology held to the belief in the existence of a fixed human capacity for intelligence, and there was much concern for exact scientific measurement. It has been said that there were two things that a developmental psychologist had to do to get a doctorate in the 1930's. He had to do a doctoral thesis well, and he had to give a Stanford-Binet precisely. Studies suggesting that IQ scores might change during life, like Beth Wellman's early Iowa studies of the effects of preschool on IQ or various test-retest studies of IQ stability and reliability, tended to be discounted if they came up with the wrong answers. The method of the study was bad or the administration of the test was confounded. Hunt's important book, Intelligence and Experience (1961), widely regarded today as an argument towards public preschool programs, seems instead to have been written primarily against the simplistic assumptions of the years preceding.

Two important new issues surfaced in the 1930's and 1940's. First, it became much clearer that existing IQ tests were not culture-fair. They systematically gave lower scores to children from rural environments or segregated areas. Jensen (1970) observes that:

> ...intelligence tests are as we know them evolved in close conjunction with the educational curricula and instructional methods of Europe and North America. Schooling still heavily bears the imprint of its origins in predominantly aristocratic and upper-class European society.... If the educational needs and goals of this upper segment of society had been different, and if their modal pattern of abilities -- both innate abilities and those acquired in these peculiar environmental circumstances -- were different, it seems a safe conjecture that the evaluation of educational content and practices and consequently the character of public education in modern times would be quite different from what it is. And our intelligence tests -- assuming we have them under these different conditions -- would most likely also have taken on a different character (p. 56).

This should not be true for a test of basic human capacity. Repeated efforts to develop a culture-fair test of intelligence, usually through adoption of less verbal and more performance items, failed to be convincing. The second issue was brought about by the development of factorially differentiated testing. Thurstone and other psychometricians after him began to argue for partial or complete division of human intelligence into functionally separate and statistically independent special capacities. Thurstone's factor analytic studies of intercorrelations among IQ tests given to young children found that six factors were needed to account for their mental abilities: verbal comprehension, word fluency, space, number, memory and induction. The most elaborate factor analytic decomposition so far has been that developed by Guilford (1959), which requires a three-dimensional matrix containing 120 cells to contain its model of differentiated mental abilities.

While mental testing has more and more suggested that human cognitive competence is not unitary, not to be expressed in a single factor, other research literatures have been demonstrating consistent human differences in approach to information-gathering -- what are known as "cognitive styles" (e.g., Kagan et al., 1963, Kagan and Kogan, 1970; Witkin et al., 1967; Meyers et al., 1964). Thus, within both the testing and the psychological research literature, there now seems to be as much justification for viewing what we generally speak of as 'intelligence' as a conglomerate or aggregate of functional abilities as for the generally prevailing view that there is one wholesale functional ability.

What then does an intelligence test actually measure?

1) It tests some set of cognitive achievements in the child, achievements which are a joint product of hereditary talent and cultural milieu.

2) It tests capacity to profit from schooling, to some extent. The correlation with school achievement is good, but by no means perfect.

3) It samples the cognitive achievements of the child in the same way, perhaps, that one might test for "athletic ability" by a sample of athletic skills and variegated game scores.

4) It has some biases, probably, with respect to what might be a full-range cognitive assessment of the child. Those biases are probably similar to the biases inherent in the demands of the school on the child, which is most likely what makes the test useful as a school-selection instrument. They are also probably weighted toward the ability of the child to deal with letters, words, and numbers and with reasoning problems presented in those codes. They are, finally, probably biased against spatial reasoning, manipulative ability, and against competences in emotional self-management, social skill and leadership, and management ability.

5) There are most likely some noncognitive biases as well, relating to the test milieu as well as the test substance The tests are probably biased against children whose previous social experience has not included contests like the testing experience, and more generally, towards children who have a quickness of reaction, a quickness to "get things", and a flexibility in reaction to quickly changing demands.

Achievement tests. These tests, unlike IQ tests, have a much more straightforward meaning, and their public image adheres more closely to their pattern of findings. An achievement test is a standardized, nationally normed final examination for a specified segment of school curriculum. The major questions about such tests have to do with whether they are valid, whether they reasonably represent what is supposed to be taught in the early grades, and whether they can be applied as nationwide instruments of comparability and accountability across schools and school systems.

Whatever the question, however, norming procedures are certain to be a problem. Achievement tests are standardized by being applied to samples of children presumed to be statistically representative of the general population which will some day take the test. Lack of representativeness of this norming sample could lead to misleading scores. If the norming sample of the test contains a disproportionate number of middle-class children, there will be a misalignment of raw scores against grade-point-equivalent scores so that when the test is widely applied, the child of average performance will be scored as "below average". It is, in fact, not easy to gather a nationally representative norming sample for a published test, and idiosyncratic norming biases occur in the spectrum of published tests.

A second problem arises from content biases in the tests. The teaching of reading is a useful example. Schools begin reading instruction in different ways. The most familiar divergence is that between "phonics" versus "whole word" approaches, but there is a more elaborate differentiation of curriculum approaches. Since test developers must make some selections of what to test, there is a problem of match-mismatch between the test and the school's program. This creates a significant problem if two or more schools are brought into comparison, and the achievement test fits the curriculum of one school more than it does the other's. The school selecting its own achievement test will use the test that best fits its curriculum goal. But then grade-point-average comparisons of two schools using different tests become difficult to interpret.

For this example, at least, a solution has been suggested by Webber (1971). Generally, one way or another, schools now get through the decoding part of teaching reading by the end of the third grade. It is conceivable that all schools should reasonably be expected to be at about the same place in the third grade and, at that time, one might make a better judgment of differential effectiveness. But the general problem of testing for what is being taught (and at the right time) remains a more speculative problem in the present use of achievement tests for program evaluation. Most of the achievement test evaluation work to date has been for preschool programs and Title I programs. It has been concentrated on the early grades of school. The achievement test evaluations have been concentrated in the K-3 range where, as has just been noted, achievement of decoding is the key educational issue. Generally, the more "structured" curricula tend to win out over the more "open" curricula in these achievement test comparisons. But the large problem for the child who does not do well in school does not lie in decoding. It seems to lie in comprehension, in the intellectual use of reading skills. The famous "fourth grade slump" of poor children is probably caused by their extreme difficulty in making this transition. It is at least possible that "open" programs that try to stimulate motivation, curiosity and intellectual drive might come into their own in later testing because, in effect, they have been teaching toward the comprehension test rather than the decoding test.

Despite the reservations just noted, achievement tests remain today the single strongest and most trustworthy standard for the evaluation of programs for young children. They are, all things considered, among the best of existing tests in terms of norming, reliability, and validity. They assess a goal which is of recognized social utility -- the attainment of literacy. Excepting IQ, they show correlations with indices of later life chances of a child that are about as good as any existing instrument -- although no instrument, including IQ, is very strong as a predictor. Finally, achievement tests have a modicum of feedback utility for project development. Although their subtest scores tend to be unreliable, they give some suggestion to the teacher about the child's strengths and weaknesses in such a way that the teacher can tailor future work to them.

In the near future, at least, the best indicator of the utility of various programs in early childhood will probably be the school achievement test. This will be used as an immediate indicator of the programs across grades K-3, but also be a delayed, and definitive, indicator of the effectiveness of programs operating in the 0-5 age range. If we administer an infant stimulation program to a child aged 0-3, we have almost no instrumentation available with a predictive power for the child's later life chances. We will probably not fully know the utility of intervention in ages 0-3 for the child's cognitive development until we have traced the program's effects longitudinally toward its impact on the child's schooling. (We can register program effects on an IQ test administered at about age 3 but, again, we will probably not be sure of the value of early extra IQ points until they are later cashed in for extra school achievement.)

The sections to follow review the cognitive tests available for early day care projects, for preschools, and for early elementary projects.

Day care -- cognitive evaluation. The enrichment or stimulative goals of developmental day care require some measures of the infant's cognitive development if there is to be immediate program evaluation. Many day care projects have concentrated on measures of cognitive development, partly because of the value placed on IQ gains and partly because of the lack of even a primitive technology of socio-emotional measures in the 0-3 age range.

Examples of instruments commonly used in cognitive evaluation are given in Table 5.5. There are not many instruments because of a general shortage of research and testing of infants. During the 1930's and 1940's there was a trend to baby testing, and a number of efforts were made to establish a standardized DQ (developmental quotient) which might be comparable to the IQ taken from the child later in life. Most of the longitudinal data we have about prediction from infancy comes from the early testing initiated in this first period. Infant testing died away for a time, probably because it was found difficult to make later predictions of children's ability from tests in early infancy. It was, and still is, impossible to predict later IQ from measures taken up to the first year of life. Prediction of later IQ only becomes possible to a moderate degree at about 2 or 3 years of age. We do not know if it is impossible to make a very early prediction of later IQ, or alternatively, whether we have not succeeded in doing so because the earliest baby testing efforts did not hit upon IQ-relevant measures at first. (Recently, for example, it has been argued that very early indices of language development may be predictive of later IQ for girls, though not for boys.)

There has been a second wave of infant research stimulated largely by Piaget's important theoretical analysis of stages of sensorimotor development in infancy. This second wave has not worked towards the building of new IQ or DQ scales, but rather on the establishment of standardized tests for the assessment of Piagetian stage in the infant. Piaget-based testing

TABLE 5.5

Sample Measures of Cognitive
Development (Day Care, ages 0-3)

Bayley Scales of Infant Development
(1960 Edition; age range 2 to 30 months)

Subtests	Norming Sample	Reliability	Validity
Mental Scale Motor Scale Infant Behavior Record	N = 1262 (50M, 50F, at each of ages 2,3,4,5,6, 8,10,12,15,18,21, 24,27,30 months) 1960 U.S. census data used to create sample reflecting national percentages with respect to color and urban-rural residence, geographic region, occupation and education of head of household. Within cell selection of individuals not necessarily random, i.e., at field examiners' discretion.	Split-half: Mental: .81-93 Motor: .68-.92	Correlation of Mental Scale score with Stanford-Binet (Form L-M) at ages 24 to 30 months

TABLE 5.5 (Continued)

Cattell Infant Intelligence Scale (1940 Edition; age range 2 to 30 months)

Subtests	Norming Sample	Reliability	Validity
Single scale	N = 274 All middle class	Split-half; .56-.90; most in eighties	Correlations with: Stanford-Binet .10 - .83 WISC nearly 0 Griffiths .85 - .95 Gesel .50 - .74 (Note: correlations with Stanford-Binet and WISC are *predictive*. The Cattel was given over ages 3 to 30 months, the S-B at 36 months, and the WISC at about age 6.)

TABLE 5.5 (Continued)

Einstein Scales of Sensori-Motor Development
(1969 Edition; age range 1 to 27 months)

Subtests	Norming Sample	Reliability	Validity
Prehension	N = 292 "Since the sequence of sensori-motor stages is hypothesized to be universal, no effort was made to obtain a representative sample. Socio-economic status ranged from marginal levels to the professional middle class. . ."	Inter-observer: .94	Cross-sectional validation: age correlation .83 - .85 Longitudinal validation: "All subjects on all scales progressed in the anticipated sequence."

TABLE 5.5 (Continued)

Gesell Developmental Schedules
(1940 Edition; age range 4 weeks to 6 years)

Subtests	Norming Sample	Reliability	Validity
Motor Adaptive Language Personal-Social	N = 107 All white, full-term, and of northern European extraction.	Split-half: .79 - .89 Inter-observer: in nineties	Correlations with: Stanford-Binet .28 - .70 Cattell .50 - .74 (Preschool and School age S-B scores correlated with Gesell at 16 to 52 weeks [ages combined].)

TABLE 5.5 (Continued)

Gouin Decarie Piagetian Series
(1965 Edition: age range 3 to 20 months)

Subtests		Norming Sample	Reliability	Validity
Stages	Description	N = 90 total	None reported	All 90 subjects passed stages in order. "Not a single subject passed an item which was considered typical for the end of a stage and failed one considered characteristic for the beginning of that stage."
I & II	no search	3,6,9,12,16 20 months old	Inter-tester Spearman correlations:	
IIIa	visual accomodation			
IIIb	reconstitution of the whole	30 with parents	.99	
IVa	active search with grasping move	30 awaiting adoption		Correlations with the five subscales on the Griffiths: .88 - .91
IVb	without sequence of visual displacements	30 institutionalized		
Va	with sequence of visual displacements			
Vb	without sequence of invisible displacements			
VIa	with sequence of invisible displacements			
VIb	systematic use of representation			

TABLE 5.5 (Continued)

Griffiths Mental Development Scale
(1954 Edition; age range 1 to 24 months)

Subtests	Norming Sample	Reliability	Validity
Locomotor	N = 571 All from London; predominantly professional.	Among the various subtests: -.13 - .78; averaged near .40	Griffiths at 3,6,12,18 months correlated with Stanford-Binet at 5 years: .03 - .46
Personal-Social			
Hearing and Speech			
Hand and Eye			
Performance			

is, in effect, in the first stage of development of the Binet instrument (when it was used to assess a 'mental age' of the child and had not been used to derive an estimate of the basic capacity of the child).

Almost all of the instruments described in Table 5.5 fall neatly into the first or second types of testing. The Bayley, Gesell, and Cattell instruments are older general-capacity instruments; the Einstein and Decarie instruments are derivatives of Piaget's system developed more recently. The Griffiths is a kind of "advanced" general-capacity test, in that it does not seek one overall and unitary estimate of capacity, but tests the child selectively for differentiated special capacities that are then averaged to give an index of special capacity.

Brief characterizations of norming, reliability, and validity of the tests are given in Table 5.5. Of immediate interest is the established validities of the various instruments. All of the instruments have been validated against intelligence estimates with the exception of the Einstein, which, so far, has been checked for validity only to the extent that tests for internal consistency have been conducted. The correlations of these 0-3 infant tests with IQ become fairly good toward the end of the age range. It is only toward age 3 that the IQ test itself shows stability.

At present, at least, it seems reasonable to conclude that the only available instruments for the evaluation of early infant stimulation projects are IQ tests given toward the end of the 0-3 age range. This is not to say that IQ changes are, or should be, the prime goals of these projects. Nor does it say that early test changes, or changes in a variety of _ad hoc_ cognitive instruments, are meaningless. It says that it is difficult to assign any meaning other than "face validity" to other tests and measurements which may reflect change in the child in this age range.

Preschools -- cognitive evaluation. Evaluation of the preschool-aged child is slightly more differentiated than at earlier ages. Various instruments purport to be able to assess abilities ranging from the purely cognitive (in the Piagetian sense, unbiased by verbal or cultural factors) to social competences. Summaries of available evaluation instruments for children in this age range are given in (1) Table 5.6 for cognitive tests, and (2) Tables 5.8 and 5.9 for the noncognitive (socio-emotional and psychomotor) tests.

The difficulties with evaluation at this age stem from two main sources:

1) In cognitive development, the debate between those who hold the Piagetian view of stages in concept development and those carrying on in the IQ tradition. The question of what exactly Piagetian and IQ tests measure is considered below.

2) In socio emotional development, the question of teasing out social competence from normative values held by only one class or segment of society:

> The Preschool Inventory is a brief assessment and screening procedure designed for individual use with children in the age range of three to six years. It was developed to give a measure of achievement in areas regarded as necessary for success in school. The Inventory is by no means culture free; in fact, one aim in its development was to provide educators with an instrument that would permit them to highlight the degree of disadvantage which a child from a deprived background has at the time of entering school so that any observed deficits might be reduced or eliminated. (Preschool Inventory Handbook, 1970, p. 4)

With the advent of cognitive-developmental theories-- notably that of Piaget--the assessment of mental abilities has become quantitative. Mental growth is seen as a series of reorganizations of mental structures which, at various points in development, allow the child to grasp such concepts as weight and volume conservation, metaphorical interpretations of proverbs, etc. The standardized psychometric IQ tests often test such qualitative differences, but because of their scoring procedures usually fail to identify them, as the following example cited by Elkind shows:

> In the Piagetian view, mental growth is not a quantitative but rather a qualitative affair and presupposes significant differences between the thinking of children and adolescents as well as between preschool and school age children.
>
> These qualitative differences are, as a matter of fact, built into the items of mental tasks but are masked by the assignment of point scores to successes and failures. On the Wechsler Intelligence Scale for Children various of the subtests recognize qualitatively different responses only by assigning them additional points (Wechsler, 1949). For example, a child who says that a peach and a plum are alike because "they both have pits" is given a single point, whereas a child who says "they are both fruit" is given two points. On other sub-tests, such as the arithmetic sub-test, there is no point differential for success on problems which patently require different levels of mental ability. To illustrate, correct answers to the following two problems are both given only a single point: "If I cut an apple in half, how many pieces will I have?" A correct answer to that question is given the same score as the correct answer to this problem:

> Smith and Brown start a card game with $27 each. They agree that at the end of each deal the loser shall pay the winner one third of what he (the loser) then has in his possession. Smith wins the first three deals. How much does Brown have at the beginning of the fourth deal?
>
> Clearly, the items on any given sub-test can tap quite different mental processes but these equalitative differences are obscured by assigning equivalent point scores to the various items regardless of the mental processes involved.
>
> This is not to say that Piaget is right and that the mental test approach is wrong, or vice versa. The quantitative evaluation of mental growth is necessary and has considerable practical value in predicting school success. The qualitative approach is also of value, particularly when diagnosis of learning difficulties and educational remediation are in question. Which approach to mental growth one adopts will depend upon the purposes of the investigation. (Elkind, 1969, pp.327-328).

An alternative interpretation of the differences between standardized IQ and Piagetian measures of cognitive development is that the latter eliminate much of the situational and verbal "noise" found in the former in most testing conditions. A spokesman for this view is Kohlberg:

> An integrated Montessori program for Headstart children aged 3 to 4 led to a mean 14-point increase in Stanford-Binet IQ in the first 6 months. No significant further increase in IQ was found during the remaining 1-1.2 years in which the children were in the program. The initial IQ increases could not be considered actual increases in general cognitive-structural development, since they were not paralleled by any significant increases in performance upon Piaget cognitive-structural tasks. The primary cause of the IQ increase was an improvement in attention and rapport with adults. Increases in rated attention in the classroom (as well as in the test situation) were marked during the first 6 months, and individual improvement in rated attention correlated .63 with improvement in Stanford-Binet IQ's during this period. In addition to attention, verbalization showed a sharp initial spurt related to improvements on IQ performance. In summary, then, it appears that the IQ changes were more a result of changes in cognitive motivation than a change in cognitive capacity. These changes in turn had a ceiling rather than moving continuously upward, and the motivational changes themselves did not lead to a later increase in cognitive capacity because of increased general learning...

TABLE 5.6

Sample Measures of
Cognitive Development (Preschool, ages 3-5)

Boehm Test of Basic Concepts
(1970 Edition; for grades K - 2)

Subtests	Norming Sample	Reliability	Validity
50 items in the concept categories Space Quantity Time Miscellaneous	N = 10,000 16 medium to large cities across the U.S., non-randomly selected. School officials in each city chose classrooms to be tested; emphasis was on a wide range of SES backgrounds.	Split-half: .68-.90	Quote from handbook by Ann Boehm: "test items were selected from relevant curriculum materials and represent concepts basic to understanding directions and other oral communications from teachers at the preschool and primary grade levels."

TABLE 5.6 (Continued)

Illinois Test of Psycholinguistic Abilities
(1968 Edition; 1 Level for ages 2-7 to 10-1)

Subtests	Norming Sample	Reliability	Validity
Main Subtests	N = 962	KR-20:	Items for each subtest either theoretically generated (using the ITPA construct) or modelled after appropriate items from other tests, e.g., the PPVT and the Progressive Matrices Test.
Auditory Reception Visual Reception Auditory Association Visual Association Verbal Expression Manual Expression Grammatic Closure Visual Closure Auditory Sequential Memory Visual Sequential Memory	1. "Average communities": non-random selection of Bloomington, Danville, Decatur, and Urbana, Ill., and Madison, Wis. 2. "Middle-range" school districts: a. neither highest nor lowest in achievement and group IQ tests b. had no more than 10% Negro enrollment c. middle SES families, as judged by school officials	.45-.96 (when corrected for restricted intelligence range: .60-.96)	
Supplementary Subtests Auditory Closure Sound Blending	3. "Average" children in intellectual and social functioning. School-aged chosen by teacher evaluations and records, preschoolers by referral of mothers or older siblings. 25% of those selected were eliminated for not falling within one standard deviation of the mean on the Stanford-Binet. (original N of 2413 reduced to 962)		

TABLE 5.6 (Continued)

Leiter International Performance Scale
(1955 Arthur adaptation; age range 2 to 12 years)

Subtests	Norming Sample	Reliability	Validity
Matching Tests	N = 289	Split-half:	Correlations with
colors forms pictures	All mid-western, metropolitan, and middle class	.90 and above	a. Stanford-Binet: .69-93
Picture Completion			b. WISC
Copying Designs			Performance .79-.80
Analogies			Verbal .40-.78
Series Completion			
Recognition of Similarities and Footprints			
Immediate Memory			
Classification of Animals			

TABLE 5.6 (Continued)

Peabody Picture Vocabulary Test
(1959 Edition; age range 2-6 to 18)

Subtests	Norming Sample	Reliability	Validity
none	N = 4012 All from Nashville, Tenn.; all white.	(alternate form .67 - .84)	Correlations with a. Cal. Test of Mental Maturity .58 b. Henmon-Nelson Tests of Mental Maturity .61 (N = 150 7th graders)

TABLE 5.6 (Continued)

Preschool Inventory
(1969 Edition; age range 3 to 6 1/2 years)

Subtests	Norming Sample	Reliability	Validity
Personal-Social Responsiveness Associative Vocabulary Concept Activation-Numerical Concept Activation - Sensory	1531 children in 150 Head Start classes No sampling procedures given. Sample described by age (5 groups), sex, ethnic group (Negro, White, Mexican-American, Polynesian), and geographic region (4 groups). All children were tested in English.	Split-half: .84-.93 KR-20: .88-.92	The test construct was devised by B. Caldwell through examination of kindergarten curriculum manuals and classroom observation. The PSI Handbook states (p. 4): "The Inventory is by no means culture free; in fact, one aim in its development was to provide educators with an instrument that would permit them to highlight the degree of disadvantage which a child from a deprived background has at the time of entering school so that any observed deficits might be reduced or eliminated."

TABLE 5.6 (Continued)

Wechsler Intelligence Scale for Children
(1949 Edition; age range 5 to 15 years)

Subtests	Norming Sample	Reliability	Validity
Verbal General Information General Comprehension Arithmetic Similarities Vocabulary Digit Span Performance Picture Completion Picture Arrangement Block Design Object Assembly Coding Mazes	N = 2200 (100 M, 100 F at each age 5 to 15; 55 "feeble-minded") 1940 US census data used to create sample reflecting national percentages with respect to geographic region, urban-rural, and father's occupation. Only white children included.	Split-half: Verbal: subtests range .59 - .91 Performance: subtests range .59 -.88	No details given. Construct for WISC devised by D. Wechsler; items developed by several school psychologists.

TABLE 5.6 (Continued)

Wechsler Preschool and Primary Scale of Intelligence
(Age range 4 to 6 1/2 years)

Subtests	Norming Sample	Reliability	Validity
Verbal Information Vocabulary Arithmetic Similarities Comprehension Sentences Performance Animal House Picture Completion Mazes Geometric Design Block Design	N = 1200 (100M, 100F by half-years for 4 to 6 1/2) 1960 US census data used to establish sample quotas with respect to geographic region, urban-rural, white-non-white, and father's occupation. Within-cell selection of individuals not necessarily random, i.e., at field examiners' discretion.	Split-half (odd-even): Verbal: .75 - .88 Performance: .62 -.91	For construct validity, WPPSI Full-Scale score correlations: Stanford-Binet (L-M) .75 Peabody Picture Vocab. Test .58 Pictorial Test of IQ .64 Note: N = 98, one school only

> It was found that Piaget tests were more stable than the Binet tests, i.e., they yielded test-retest reliabilities between a 2- to 4-month period in the 90's. It was also found that when a child was initially high on the Piaget tests and low on the Binet tests, he would increase markedly on the Binet tests at the later period. In other words, the Piaget tasks were more situation-free measures of cognitive capacity. Using nonverbal techniques (choice of lengths of gum, glasses of Coca Cola) to indicate possession of the conservation concept, the Piaget tests elicted evidence of cognitive maturity masked by distractibility or shyness in the Binet situation. The Piaget tests, then, seemed to eliminate some "non-cognitive" situational and verbal factors due to experience. (Kohlberg, 1968, pp. 1051, 1055)

Stephans et al. (1972) provide evidence that IQ tests and Piagetian measures of cognition are tapping different abilities. The scores of 150 subjects on the Wide Range Achievement Test (WRAT) subtests, the Wechsler intelligence scales (WAIS and WISC) subtests, and 27 Piagetian reasoning tasks were factor-analyzed. On one factor all the Wechsler and WRAT scores loaded .45 to .82; only one Piagetian task loaded over .25. Furthermore, the three factors defined by the types of Piagetian tasks each had substantial loadings with age (which the Wechsler and WRAT scores did not), indicating developmental influences.

Evaluation of cognitive development -- especially at the preschool age -- depends heavily on which theory one employs. This ignores entirely the further question of the validity of instruments devised by either the Piagetian or IQ camps. The measures will become somewhat more adequate as tests of Piagetian development become standardized, and as situational and verbal "noise" of the present standardized IQ tests is cleared up.

Early elementary education -- cognitive evaluation. Some of the most frequently used achievement tests for the early grades of school are sketched in Table 5.7. Projects in the early elementary grades are assessed almost exclusively by achievement test effects, although a number of experimental programs set goals for themselves that require a suspension of at least the usual expectations about a child's progress in school achievement. There is an argument that some children arrive in school with a need to acquire attitudes and cognitive skills as a substrate to any formal progress in academic teaching. Experimental projects that attempt to meet these substrate needs may reasonably hold that they should be evaluated by later effects on the child's schooling, but that any immediate achievement testing may well show their project at a disadvantage as compared with projects that go more directly to the traditional educational targets.

Some of the major issues in achievement testing have been developed in the preceding discussions of this chapter. As has been noted above, the achievement test is the one test of childhood programs with some social credibility as a utility for children. However, there is much existing dissatisfaction with achievement testing in the schools, particularly since they have been proposed as a standard for accountability.

> The major problems (in using standardized tests for accountability) involve questionable test validity, poor overlap between program and test objectives, inappropriate test instructions and directions, and confusing test designs and formats. In short, a void exists between the demands of accountability and the present stock of standardized instruments. Further, this void will probably only widen as the pressure for accountability increases unless we start improving the methods of test construction and use. (Klein, 1971, p. 8)

Standardized tests are evaluations of a status rather than a process. They do not look at the interactions among student, teacher, and environment. This is reflected in the way they are constructed. Test designers devise items by culling textbooks in widespread use. For the test to be valid, there must be agreement between what the teacher feels he or she has taught and what knowledge the test taps. The consensus is usually an emphasis on factual or rote learning. The format of achievement tests illustrates this; there is a preponderance of multiple-choice or short-answer items. As Dyer says:

> The danger from this repetitiveness (in the type of test question) arises not so much from the tedium it is likely to bring to the testing situation as from the notion it is likely to implant in the minds of pupils and teachers that effective reading is something one achieves by following the standard formula. (1965, p.60)

Generally, the most serious charges levied against achievement tests have to do with their fairness-- to individuals, to curricula, and to cultural differences.

--If a great weight of recent psychometric and psychological evidence is to be believed, individual children differ markedly. They differ not only in knowledge and abilities, but in their styles or characteristic approaches to things like sitting in school and learning or sitting at a desk and taking a test. Can we do justice to all this diversity with a single achievement score as a summary of a year's learning?

--Even among schools that accept the traditional goals of the early elementary grades, there are distinct variations by school and often by teacher in the patterns of classroom work set forth to a child in the early grades of school. Can any single achievement test form a uniform standard of 'accountability' for all kinds of educational approaches?

--Recent studies (Lesser, Fifer, & Clark, 1965; Hertzig et al., 1968) have provided evidence of different patterns of mental abilities, and different approaches to test-taking, characteristic of different ethnic groups in American society. Can a 'standardized' test be culture-fair?

This last question, the question of culture-fairness, is of some importance right now. Anastasi, one of the world's leading authorities on testing, has expressed herself as pessimistic about the possibilities of culture-fair testing:

> It is unlikely that any test can be equally "fair" to more than one cultural group, especially if the cultures are quite dissimilar. While reducing cultural differentials in test performance, cross-cultural tests cannot completely eliminate such differentials. Every test tends to favor persons from the culture in which it was developed. The mere use of paper and pencil or the presentation of abstract tasks having no immediate practical significance will favor some cultural groups and handicap others. Emotional and motivational factors likewise influence test performance. Among the many relevant conditions differing from culture to culture may be the intrinsic interest of the test content, rapport with the examiner, drive to do well on a test, desire to excel others, and past habits of solving problems individually or cooperatively. (Anastasi, 1968, p. 251)

Questions about the culture-fairness of testing have been around for a long time. Beginning in the 1920's, the rise of IQ testing precipitated a long and unsuccessful search for a test that could reasonably be regarded as a uniform measure of capacity for children of diverse cultural and environmental backgrounds. The attempted solutions usually took the form of motor or performance scales, tests that avoided as much as possible dealing with the vocabulary and linguistic factors that are so manifestly different among children from different milieux. We now know enough (1) to believe that performance tests cannot be proxies for verbal tests in an estimate of a unitary general intelligence, but rather get at abilities that are significantly differentiated from and independent of verbal abilities; and (2) to believe that cultural differences are not just language differences, but involve attitudes and approaches to problem-solving that may as easily manifest themselves in motor as in performance tests. Our lack of success in developing a culture-fair IQ test, despite serious efforts, has precipitated some pessimism about our ability to solve the problem, a pessimism reflected in the Anastasi quote above.

Recently, parents in ethnic minority groups have shown an increasing sensitivity to non-culture-fair testing. Their primary concern has been with tests that presume to make a statement about the child's fundamental capacity -- IQ tests and IQ-like tests, of which school achievement tests form a conspicuous group. Their argument, and it is a reasonable one, is that such tests are "loaded" against their children. The children do not show up well on the tests. School people and other adults then take these poor scores as conformation of a widespread stereotype that holds that these children are not as intelligent and not as capable of schooling. The children are, in effect, abandoned in a school environment that treats them with passivity and skepticism about their ability.

This argument has been regularly made with respect to black, Chicano, Puerto-Rican, and Indian children and it has precipitated some present resistance to standardized testing of such children. One problem with the argument is that some ethnic minority children, particulary Chinese and Japanese children, appear to do well in school tests and in school despite some clear signs that these children come from what can reasonably be regarded as a subculture within American society. This seems to suggest that it is not going to be sufficient to recognize cultural diversity in children's background and, somehow, control it out of school testing and school classrooms so as to level out all the diversity. We will probably need to know what the subcultural diversity amounts to in terms of home atmosphere, parent practices and attitudes, etc. There is some basis for an argument that the Chinese and Japanese subcultures of American society, like the Jewish subculture, depart from the normative U. S. patterns by providing a home atmosphere that is superoptimal for the child's later success in school. And, of course, there is always the possibility that all of the hypothesized differences in ethnic subcultures are secondary to racial genetic differences in school potential.

What does seem clear at present is that the issue of culture-fairness in school testing is a serious and difficult one. As has been noted above, the school achievement test is our single best standard for early childhood programs that seek to stimulate child development. However, the use of such tests as primary tests of elementary projects or as delayed tests of preschool and day care projects must be accompanied by certain precautions.

1. The norming and reliability of school achievement tests are generally adequate for use with children from typical, modal milieus.

2. The validity of school achievement tests is moderated by the curriculum used in the classroom. A given test is likely to be biased towards one kind of classroom approach over another. It is at least conceivable that the issue of "curriculum-fairness" of achievement testing could be reduced in severity by deliberate design of tests to embody fairness. At present, comparisons of elementary education projects by achievement testing should include some consideration of the relevance of the tests to the projects. And it must be recognized that some experimental projects -- e.g., "discovery" kinds of classrooms -- depart from an emphasis on early school achievement in favor of a hope of greater long-term gain.

3. The culture-fairness of achievement testing is questionable. It is likely that achievement tests now stigmatize some kinds of children from

TABLE 5.7

Sample Measuring of Cognitive Development (Early Elementary, ages 6-9)

California Achievement Tests
5 Levels for Grades 1.5 - 12, '70 Edition

Subtests	Norming Sample	Reliability	Validity
Reading Vocabulary Comprehension	N= 203,684 Grades 1-12 Public and Catholic Schools	KR -20 Level I (Grade 1.6) .73 - .96	I. Content based on: 1) Review of state-approved reading, mathematics, and language textbooks.
Mathematics Computation Concepts & Problems	Public school sample was stratified according to geographic location (7 religious), average enrollment per grade (less than 385, 385 to 1922, more than 1922), and "density" (average enrollment per grade per square mile: 3 cells - less than 1, 1 to 10, more than 10). Proportion allocation yielded 53 cells. Within cell selection of school district by random number technique, with simple random sampling within cells.	Level II (Grade 2.6) .84 - .96	2) Review of curricula course objectives from various school districts.
Language Auding Mechanics Usage & Structure Spelling			II. 8,000 students of "average ability" (mean IQ for class 98-104) used in item analysis to select items which effectively discriminate among grades, are consistent with the total test performance, etc.

TABLE 5.7 (Continued)

Cognitive Abilities Test
(1968 Edition; 2 levels for grades K to 3)

Subtests	Norming Sample	Reliability	Validity
Oral Vocabulary	N = 2700 (K) 5000 (Grades 1 to 3)	KR-20: .90	No details given
Relational Concepts			
Multi-mental ("the one that doesn't belong")	Sample was a subset of the 180,000 used to norm the 1963 Lorge-Thorndike intelligence Test. No details on randomization given.		
Quantitative Concepts			

TABLE 5.7 (Continued)

Comprehensive Test of Basic Skills
(1967 Edition; 4 Levels for Grades 1-10)

Subtests	Norming Sample	Reliability	Validity
Reading	N = 212,000	KR - 20: .77-.92	Correlations with California Achievement Test:
Vocabulary			
Composition	Stratified random sampling, by	(Level I)	.68 - .82
Language	a. size of school district		Content validity:
Mechanics			"Test items were written by classroom teachers of the grades for which the tests were designed, in cooperation with curriculum and testing specialists."
Expression	b. educational-economic index (median annual income and education (in years) of people in school district over age 24)		
Spelling			
Arithmetic			
Computation			
Concepts	c. geographic region		
Application			
Study Skills	Simple random sampling within school districts		
	88% of initially-chosen districts accepted		

TABLE 5.7 (Continued)

Cooperative Primary Tests
(1965 Edition; 2 Levels for Grades 1-3)

Subtests	Norming Sample	Reliability	Validity
1. Listening 2. Word Analysis 3. Mathematics 4. Reading 5. Writing skills (second level only)	8,900 students Random sampling of all public school districts enrolling 300 or more students, based on cumulative enrollment of districts within a given state arranged alphabetically. Simple random sampling within school districts. Biases: a. public schools only b. only districts over 300 population c. 37.5% initially-chosen districts accepted	KR-20: .81-.93 (Note: reliability sample size N = 850)	Tests constructed by "persons qualified to judge the relationship of test content to teaching objectives."

TABLE 5.7 (Continued)

Gates-MacGinitie Reading Tests
(1964 Edition; 5 levels for grades 1-9)

Subtests	Norming Sample	Reliability	Validity
Primary A,B,C (grades 1-3) Vocabulary Comprehension Primary CS (grades 2&3) Speed Accuracy	40,000 students 38 communities "The communities were selected on the basis of size, geographical location, average educational level, and average family income . . . . Within each community, testing was carried out in one or more schools judged, by the school officials, to be representative of the community as a whole."	Alternate form: .81-.87 Split-half: .89-.94	No data given. Item analysis based on the 1500 students at each grade level used in final selection

TABLE 5.7 (Continued)

Stanford Achievement Test
(1964 Edition; 5 levels for grades 1-9)

Subtests	Norming Sample	Reliability	Validity
Primary I (grades 1.6-2.6) 1. Word Reading 2. Paragraph Meaning 3. Vocabulary 4. Spelling 5. Word Study Skills 6. Arithmetic	850,000 students 264 school systems 50 states Sampling procedures not given, except that sample "would duplicate . . . the characteristics (geographical distribution, type of school system, number of students per grade) for pupils in average daily attendance in public and private schools throughout the country." In each system selected, all students were tested. For grades 1-3, the norming sample consisted of a "representative sample of 10,000 students per grade."	Primary I Split-half: .79 - .95 KR-20: .83 - .95	No details given. Correlations with the 1953 Stanford Achievement Test - .81. Otis Quick-scoring Mental Ability Test - .35 to .75, depending upon subtest.
Primary II (grades 2.6-4.0) 1. Word Reading 2. Paragraph Meaning 3. Science & Social Studies Concepts 4. Spelling 5. Word Study Skills 6. Language 7. Arithmetic Computation 8. Arithmetic Concepts		Primary II Split-half: .84 - .94 (but Science & Social Studies Concepts - .66) KR-20: .83 - .93 (Science & Social Studies Concepts - .71)	

distinctive cultural backgrounds. There is no known way to correct testing to get around this problem, particularly since we do not understand very well those aspects of a child's culture that moderate the child's response to testing. Some now argue that a test should not be used with a minority child unless members of his minority group are proportionally represented in the norming sample. But it is not clear that norming by proportional representation will seriously remove the problems of culture-fairness. One might alternatively norm seperately for distinctive groups of children. This would be expensive and difficult if it were done for many tests, and it might be an unduly laborious procedure to get around what seems basically to be a problem of general misunderstanding of tests.

4. Achievement tests, like most tests, are not taken as a basis of more absolute and definitive judgments about children than seems warranted by their capabilities. All of the diverse problems of fairness seem to arise because tests are taken to be absolute measurements of children, like physical measurements. If achievement tests could be understood as the relativistic, probabilistic indices they are, they would still maintain their utility as evaluation instruments. But there might be a significant reduction in the kind of excess credibility attached to the test scores. This excess credibility seems to be the real basis of the several fairness issues surrounding the usage of the tests.

Noncognitive Measures for Young Children

There is widespread agreement among all who have anything to do with children's programs that some wider spectrum of evaluation instruments is needed. The need, it is often said, is for more "noncognitive" instruments. In earlier discussion, we have argued that not all goals of government programs work out to be simple directional efforts on selected children -- increases in this positive characteristic or decreases in that negative characteristic. Not all the goals can be conceived of as "enrichments" or as corrections or preventions of "deficits". A number of the goals have to do with the distribution of children's characteristics, consequences of the distribution, or institutional reactions to the distribution. Movement towards such goals cannot be assessed by a compilation of simple directional project effects on selected children. It must be measured by what might be called distributional, sociological, or demographic indices or else by studies of institutional response to a distribution or diversity of children. The relevant contrast is that between the Westinghouse study of the effects of Head Start on children's cognitive and affective development and the Kirschner Associates study of the community impact of Head Start programs.[14]

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[14] As this report was being completed, another compilation, prepared by Deborah Klein Walker, became available. This appears to be the most complete survey of socio-emotional measures of young children now available. It draws from all the sources used for this report and adds further information from new sources. See Walker, D.K., Socio-emotional Measures for Preschool and Kindergarten children: A summary and critique. Unpublished qualifying paper, Harvard Graduate School of Education, 1972.

The discussion to follow reviews those "noncognitive" measures that are child centered, though it is important to note that widespread appeals for such measurement seem usually to be appeals for mixed psychological, sociological, and institutional assessment. We consider only the psychological measures because it is only for the psychological measures that we have the beginnings of a measurement technology -- generally, a large body of psychological instruments without adequate norming, reliability, and validity. Even with reference to the psychological instruments the term 'noncognitive' is a little misleading. Discussions of the noncognitive instrumentation that we need usually call for some instrumentation that most psychologists would define as cognitive. People are concerned about the need for instrumentation other than the predominantly cognitive IQ and achievement tests, but at the heart of this concern for noncognitive tests is the feeling that fundamental program effects may occur, undetected, on the child's sense of ease and security, comfort among others, self-concept, attitude towards learning, etc. There is a concern about the social and emotional effects of a program on a child.

The social and emotional growth of the child was the primary goal of nursery schools in the 1940's and 1950's; earlier, in the 1920's, it had been the maintenance of physical health and inculcation of health habits. After the national emphasis on cognitive development in the late 1950's and early 1960's, social and emotional goals again became co-equal with cognitive development in most preschool programs for "disadvantaged" children. One of the largest pushes for noncognitive measures has arisen from Head Start programs. Six of the seven stated goals of Head Start are non-cognitive. Furthermore, of these six, five are in the socio-emotional domain, while only one is psychomotor. But most of the evaluations to date of this national program have relied almost exclusively on cognitive measures--specifically. intelligence and achievement measures. Edward Zigler, Director of the Office of Child Development, said: "We are crucifying the children of this country on the cross of IQ...This society is too IQ conscious, as though IQ is the measure of a person. IQ doesn't predict that much."

Many psychologists and educators today (Frank, 1969; Hartup, 1968; Maccoby, 1968; Deutsch, 1966; LaCross et al., 1970) point to a need for emphasis on the socialization process and on the development of the whole child in early years. Their view is that early educational experiences will help the child cultivate a wide range of social and emotional goals that he will need in developing his personality and in "adjusting" to society. Without non-cognitive measures, the validity of this assumption cannot be proved or disproved.

Problems in developing noncognitive outcome measures. Noncognitive instruments, like the weather, are something people talk about but never seem willing to do anything about. Why not?

(1) Noncognitive instruments do not seem to be a problem to be solved by test development alone. There is a substrate problem. We do not understand the basic issues of noncognitive processes in human development sufficiently to make convincing moves towards index or test development. There has been a long history of personality testing in this country, with the work concentration on adults rather than children for the most part. The work has been

predicated on the hope that personality assessments by clinical psychologists might serve as diagnostic and evaluative measures for psychiatric treatment. Despite strenuous and ingenious efforts to develop personality testing, those efforts -- projective tests such as the Rorschach and Holtzman inkblot tests, the Thematic Apperception Test, sentence completion tests, or objective tests such as the Minnesota Multiphasic Personality Inventory, the Q-sort procedures, the paper and pencil adjustment tests -- have generally not been very successful. Personality testing has an uncertain role and uncertain future in psychiatric work. One reasonable test of the efficacy of personality testing -- our present ability to detect positive effects of psychotherapy -- has again and again produced failure.

> With the single exception of the psychotherapeutic methods based on learning theory, results of published research with military and civilian neurotics and with both adults and children, suggest that the therapeutic effects of psychotherapy are small and nonexistent, and do not in any demonstrable way add to the nonspecific effects of routine medical treatment, or to such events as occur in the patients' everyday experience. (Eysenck, 1961, p. 720)

This rather strong conclusion notwithstanding, many ordinary people believe that psychotherapy does, in some sense, work. It is quite clear that psychotherapy induces large numbers of adults to part with large amounts of money, $25.00 or more per session, week after week, often year after year. Something must be going on in psychotherapy -- perhaps hysteria, false hope, desperate optimism, or a superficial feeling of relief, or perhaps something deeper. The tests do not measure or explain the phenomenon, but it is clear that a phenomenon exists. That we cannot measure it may mean that in some sense we do not understand human personality. It may be that before we can understand the quasi-therapeutic aspects of programs like Head Start we will have to understand children's personality. Then and only then can we build tests.

(2) The relatively successful domain of intellectural measurement was established on a simple, quick, and cheap technology -- for the most part, paper-and-pencil tests, and to a lesser extent, manipulative tests taking about 1 1/2 to 2 hours of trained time for administration and scoring. These are relatively simple tools for research and development use. Perhaps reasonable noncognitive measurement is not possible using such media but instead requires situational tests, observation of dyadic or group encounters, or sustained behavioral observation of the individual in social milieux. These are relatively expensive and time-consuming procedures and, for that reason, they are far less developed as measures of human behavior. It may be that noncognitive measurement has to be developed through standardized observations of this sort. At present, through simpler testing procedures, there is a kind of "grass roots" tendency within diverse projects to base program estimations more on observation than on testing.

(3) Very few of the noncognitive measures have adequate standardization norms. Many have reliability estimates -- either test-retest or internal consistency -- but almost none have any meaningful validity data. Because of these limitations, the interpretation of results is almost impossible. There is no measure that gives an overall assessment of non-cognitive developmental status or predicts to "future success".

Categorization of noncognitive measures. Table 5.5 lists some of the recent noncognitive measures categorized in the system described above (Table 5.3). This classification is a heuristic device and is not meant to be evidence that man's development can be divided accurately into these discrete parts.

The UCLA analysis of preschool, kindergarten, and elementary tests (Hoepfner et al., 1970; Hoepfner, Stern and Neummedal, 1971) and the Johnson and Bommarito (1971) book of child development tests and measures were the first books to compile a large number of measures of young children. The former compiles published standardized tests, and the latter surveys non-published tests that appeared in prominent psychological journals from 1956 to 1965.

Because of the weakness of noncognitive measures such as these, the majority of measures that have been used in the Head Start and Follow Through evaluations have been cognitive. In the Westinghouse/Ohio Study of Head Start (Circirelli et al., 1969), three noncognitive measures were developed and used; but the results obtained with them were practically ignored since the standardization of the instruments was inadequate. In the three years of the Head Start Planned Variation study, begun in 1969, more noncognitive instruments were used: a motor-inhibition test, ratings of the children by teachers, the Eight Block Sort, and a classroom observation instrument. In the third year, a self-concept and an achievement motivation measure were also added. A number of these measures were developed by the Educational Testing Service in their Head Start Longitudinal Study (1968, Shipman, 1970). In the Follow Through evaluation, no noncognitive measures were used in the first years; recently two tests have been added to the test battery.

Illustrative examples of the noncognitive measures that presently exist for preschool (3 1/2 to 5), kindergarten (5 to 6), and early elementary (6 to 9) children can be found in Table 5.8 (socio-emotional domain) and Table 5.9 (psychomotor domain). The measures of all these age groups have been placed together in the tables since there are few important differences among them. One difference is that most of the preschool measures are individually administered to a child while most measures for the primary grades are group administered. In Tables 5.8 and 5.9 an asterisk identifies group administered tests; others are individually administered tests or rating scales. Tests are listed alphabetically under each category of "area measured". If a special subtest of a measure -- and not the total test -- measures a specific area, the subtest of the measure is listed with the total measure under "name of test". Information concerning the reliability and validity of each test plus any additional information, such as its having been used in a major government evaluation, is noted in the last column of

TABLE 5.8

Illustrative Examples of Noncognitive Measures in the Socio Emotional Domain**

Area Measured	Name of Test	Age	Type of Measure	Reliability, Validity and Additional Information
Self Concept	Brown-IDS Self Concept Referents Test	3.5-9	Self-report inventory	Used in Head Start Planned Variation and Follow Through Studies; test-retest reliability after 3 weeks = .71 (n = 38 black 4 year olds) and .76 (n = 36 white 4 year olds).
	Children's Self-concept Index (CSCL)	6-9	*Self-report inventory	Used in Westinghouse/Ohio Evaluation of Head Start; internal consistency = .80 (n = 100); test-retest after 2 weeks = .66; standardization data on 1,900 disadvantaged 1st to 3rd graders available.
	Children's Projective Pictures of Self-concept (CPPSC)	3.5-6	Self-report inventory	Test-retest after 2 days = .61 (n = 28 6 year olds).
	Creelman Self-Conceptions Test (CSC)	3.5-12	Self-report inventory	None available.
	Faces Scale	6-9	*Self-report inventory	Used in Follow Through evaluation; none available.
	Illinois Index of Self-derogation	6-8	*Self-report inventory	Basis of CPPSC; information not readily available.

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*Group administered; those without * are individually administered.

**Sources for Table 5.8 are Buros (1965); Cicirelli, et al. (1969); Coller (1971); Educational Testing Service (1968); Guthrie (1971); Hoepfner, et al. (1970); Hoepfner, Stern & Nummedal (1971); Johnson & Bommarito (1971); and Shipman (1970).

TABLE 5.8 (Continued)

Area Measured	Name of Test	Age	Type of Measure	Reliability, Validity and Additional Information
	Perception Score Sheet	5-7	Unobtrusive measures; observation and interviews	Reliability assumed from factor analyses.
	Pictorial Self-Concept Scale	5-10	Self-sorting task	Split-half reliability = .85 (n = 1,813)
	Preschool Self-concept Picture Test	3.5-5	Self-report inventory	Test-retest after 3 test periods ranged from .94 to .80; other information available.
	Responsive Self-Concept Test	6-8	*Self-report inventory	None available.
	Self-Concept Interview	5-6	Partially-structured interview	Correlations with teacher judgments = .45 and .02.
	Thomas Self-concept Values Test	3.5-10	Self-report inventory	Test-retest reliability after 2 weeks from .34 to .93 (n = 34 preschoolers); internal consistency ranged .60 to .77.
	What Face Would You Wear? (Self concept and motivation inventory)	3.5-17	*Self-report inventory	Grade level quartile norms available; reliability for preschool kindergarten = .79.
Social Skills	Beller's Observational Scales	2.5-6	Observational rating scale	Assesses child dependency on adult and independence or autonomy among children; some information available.

TABLE 5.8 (Continued)

Area Measured	Name of Test	Age	Type of Measure	Reliability, Validity and Additional Information
	Cair-Levine Social Competency Scale	mentally retarded trainables, 5-13	Interview	Information available.
	California Preschool Social Competency Test	2-5	Rating scale	Used in Head Start Planned Variation Study; test retest reliability between .70 and .89; internal consistency $>$ .90; age percentile norms available.
	California Test of Personality-Social Adjustment	3 up	Forced choice inventory	Information available.
	Child Scale	all	Rating scale	Interjudge reliability from .5 to .8.
	Children's Behavior Checklist	3-12	Behavior checklist	Test-retest reliabilities range from .37 to .74 (n = 346).
	Children's Minimal Social Behavior Scale	all	Structured interview	Interexaminer reliability = .98.
	Draw-A-Group Test	6-10	*Semi-projective task	None available.
	Dunnington Sociometric Status Test	4-5	Situational test	Test-retest reliability available.
	Manchester Scales of Social Adaptation	6-15	Standardized interview	Adapted from Vineland Scale of Social Maturity; information available; age decile norms available.

TABLE 5.8 (Continued)

Area Measured	Name of Test	Age	Type of Measure	Reliability, Validity and Additional Information
	McCandless Marshall Play Interaction Measure	3-5	Observations of free play	Information available.
	Medinnus First Grade Adjustment Scale	6-7	Rating scale	Inter-rater reliabilities range from .70 to .78.
	Open Field Test	3.5-6	Structured situational test of child's play	Used in ETS Longitudinal Study -- information available.
	Parten Social Participation Measure	2-4	Observational measure of child's "play"	Information available.
	Picture Sociometric Interview	3-6	Situational test	Test-retest reliabilities and correlations with teacher judgments available.
	Primary Academic Sentiment Scale (PASS)	4-7	*Self-report inventory	Information available.
	Social Analysis of Classroom	6-12	Nomination questionnaire	None available.
	Social Behavior Checklist	3-6	Observational measure	Developed in preschool project; information available.
	Socialization Scale	5-6	Rating scale	Validity estimates available; inter-rater reliability = .87.
	Stevenson's Behavioral Unit Observational Procedure	3.5-5	Observational measure	Kendall's coefficient of concordance range .80 - .94.

TABLE 5.8 (Continued)

Area Measured	Name of Test	Age	Type of Measure	Reliability, Validity and Additional Information
	Vineland Social Maturity Scale	birth up	Interview	Oldest standardized non-projective socio-emotional measure; norms, reliabilities and validity available.
Attitudes	Children's Attitudinal Range Indicator (CARI)	5-9	*Forced choice inventory	Used in Westinghouse/Ohio study of Head Start -- no norms available; some reliabilities available.
	Classroom Preference Scale	6-9	Forced-choice technique	Measures school-related racial attitudes; test-retest reliability available.
	Color-meaning Picture Test Revised	3-6	Semi-projective technique	Measures racial attitudes; none available.
	Doll Play Interview	2-6	Projective interview	Assesses interracial feelings; interscorer reliabilities vary considerably from item to item.
	Interview Schedule	5-12	Interview schedule	Assesses concept of flag and national identity; none available.
	Kutner's Ethnic Attitude	7-8	Structured projective questionnaire	Assesses ethnic attitudes; only face validity available; interjudge reliability between author and another rater = .62.
	Perceptions of Parents	4-8.5	Structured interview	No reliability available.
	Racial-Attitude Sex-Role Pictures Test	3-6	Semi-projective technique	Measures racial attitudes and views on sex-roles; none available.

TABLE 5.8 (Continued)

Area Measured	Name of Test	Age	Type of Measure	Reliability, Validity and Additional Information
	Sechrest's Structured Interview Schedule	5-9	Structured interview	None available; measures attitudes toward classroom teacher.
	Sex-role Attitude Test	5 up	Structured interview questionnaire	None available; measures children's perceptions of parents' attitudes.
	Social Discrimination Questionnaire	5-12	Sociometric questionnaire	None available; measures attitudes toward other children.
	Social Schemata	4.5-9	Interview	Measures interpersonal racial attitudes; used in ETS Longitudinal Study; none available.
Interests	Conceptions of Religious Denominations	6-12	Semiclinical interview	None available.
	Imitation Schedule	3-8	Structured doll play interview	Measures identification with like-sex parent; odd-even reliability = .86 (n = 63 preschoolers).
	"It" Scale for Children	5-6	Semi-projective technique	Measures sex role preference; test-retest reliability after 1 month = .71 for boys and .84 for girls.
	Primary Academic Sentiment Scale-Sentiment	3.5-6	*Self-report inventory	Internal consistency between .7 and .8.
	Northwestern University Interest Inventory (ETS adaptation)	5-9	Interview	None available.

TABLE 5.8 (Continued)

Area Measured	Name of Test	Age	Type of Measure	Reliability, Validity and Additional Information
General Personality and Emotional Adjustment	Behavior Checklist	5-9	Rating scale	Factor analysis on 2,600 1st, 2nd, 3rd and 5th graders available; internal consistency factors available.
	Blacky Pictures	5 up	Constructive projective technique	Uses dog pictures; insufficient reliability and validity.
	Bristol Social Adjustment Guides	5-9	Rating scale	None available.
	California Test of Personality--Personal Adjustment	5 up	*Forced-choice inventory	Information available.
	Child Behavior Rating Scale (CBRS)	6-9	Rating scale	Information available.
	Children's Apperceptive Test (CAT)	3-10	Constructive projective technique	Uses situational pictures with animals; insufficient reliability and validity.
	Early School Personality Questionnaire	6-9	*Questionnaire	Information available.
	Holtzman Inkblot Technique	5 up	Associative projective technique	Uses inkblots; reliabilities better than most other projective techniques; split-half reliabilities range between .8 and .9; test-retest after one year tend to be .5.

TABLE 5.8 (Continued)

Area Measured	Name of Test	Age	Type of Measure	Reliability, Validity and Additional Information
	House-Tree-Person Projective Technique	3 up	Expressive projective technique	Insufficient validity and reliability; adult norms only
	Kent-Rosanoff Free Association Test	4 up	Projective-word association	No reliability data.
	Learner-Murphy Frustration Test	2-5.5	Situational test	Reliabilities of teacher ratings = .86 and .84; clinical observers' reliabilities range from .94 to .97.
	Machover Draw-a-Person Test	4 up	Expressive projective technique	Insufficient reliability and validity.
	Make a Picture Story (MAPS)	6 up	Constructive projective technique	No reliability or validity data.
	Minnesota Personality Profile II	3.5-12	Rating scale	Information available on older sample only.
	Mummery Scale of Ascendant Behavior	3-5	Rating scale	Reliabilities range between .80 and .98; correlations with teachers' ratings = .02 to .79.
	Peterson Problem Checklist	6-12	Checklist	Interjudge reliability = .77 and .75 (n = 2); correlation between factors = .18.
	Rorshach Technique	3 up	Associative Projective Technique	Uses inkblots; children's norms available; information or reliability and validity available but much debated as to its meaning.

TABLE 5.8 (Continued)

Area Measured	Name of Test	Age	Type of Measure	Reliability, Validity and Additional Information
	Rosenzweig Picture Frustration Study	4-13	Completion projective technique	Uses "ambivalent" pictures; insufficient reliability and validity.
	School Observation Schedule	5-9	Rating scale	Reliability between psychologists and teachers = .67 and .86; correlation with psychiatric diagnosis = .63.
	Structured Doll Play Test	2-6	Constructive projective technique	No reliability or validity data.
	Thermatic Apperception Test (TAT)		Constructive projective technique	Uses situational pictures with humans; reliability and validity data available questionable.
Personality Variables	Affectivity Interview Blank	5-12	Standard interview	Measures affectivity; odd-even reliability range from .58 to .82; test-retest reliability after one year = .70 (n = 30).
	Anxiety Scale	3-5	Modified interview	Test-retest reliabilities from -.14 to .46 for 3-3 to 3-11 years and from .57 to .89 for 3-11 to 5-1 years.
	Barber Suggestibility Scale	6 up	Performance test-following commands	Measures hypnotizability; test-retest after six weeks = .62 (n = 12 7 year olds).
	Child Conflict Scale	4-5	Rating scale	Measures emotional conflict; interjudge reliability = .86 (n = 2); test-retest reliabilities = .44 and .56 (n = 26).
	Children's Manifest Anxiety Scale	6-12	*Self-report questionnaire	Information for upper elementary sample only.

TABLE 5.8 (Continued)

Area Measured	Name of Test	Age	Type of Measure	Reliability, Validity and Additional Information
	Children's Opinion Scale	6-13	Forced choice questionnaire	Measures opinionatedness; corrected split-half reliabilities range from .71 to .84 for elementary school children.
	ETS Locus of Control Scale	5.5-7.5	Forced choice inventory	Measures internal-external variable; used in ETS Longitudinal study; information available.
	General Anxiety Scale for Children	6-16	*Self-report inventory	No reliability and some validity information available.
	Gump-gookies	3-9	Self choice inventory	Used in Head Start Planned Variation Study; information available; measures achievement motivation.
	Palmar Sweat Prints	6 up	Physiological test	Test-retest reliabilities for four fingers over one day ranged from .54 to .80 (n = 2nd graders) and over 15 days ranged from .56 to .60; other researchers report higher reliabilities.
	Playfulness Scale	3-6	Rating scale	Measures frequency and quality of playfulness; interrater reliabilities between .66 and .83 (n = 2)
	Shaefer Behavior Inventory	3-12	Rating scale	Used in Head Start Planned Variation Study; measures traits of task orientation, extraversion, hostility; information available.
Characteristics of the Environment	Child-rearing Practices Interview	parents	Semi-structured interview	Assesses maternal attitudes towards child-rearing practices; information available.

TABLE 5.8 (Continued)

Area Measured	Name of Test	Age	Type of Measure	Reliability, Validity and Additional Information
	Conditions of Child Rearing	parents	Semi-structured interview	Assesses general atmosphere of the home; corrected split-half reliabilities range from .52 to .77.
	Eight Block Sort Task	mothers and their child	Performance task; observational measure	Measures maternal teaching strategies; used in Head Start Planned Variation Study; information available.
	Fels Parent Behavior Rating Scale	parents	Rating scale	Information available.
	Maternal Values Questionnaire	mothers	Forced choice questionnaire	None available.
	Mother-child Interaction Method Scale	mothers	Guided interview	None available.
	Mother-child Interaction Test	mother and child	Observational scheme	Median agreement of 2 observers on 17 categories is 88%.
	Multiple Rating Scale	parents	Rating scale	Assesses general atmosphere of home; split-half reliabilities range from .58 to .78.
	Parental Nurturance-Control Attitude Scale	parents	Open-ended questionnaire	Inter-judge reliability = .87 (n = 2).
	Porter Parental Acceptance Scale	parents	Self-rating questionnaire	Reliabilities range from .80 to .87.

TABLE 5.8 (Continued)

Area Measured	Name of Test	Age	Type of Measure	Reliability, Validity and Additional Information
	Social Reaction Interview	parents	Semi-structured interview	Assesses parental attitude toward children's behavior; information available.
	Stanford Parent Questionnaire	parents	Questionnaire	Assesses parental attitudes to child-rearing practices; for all scales, mean reliability = .58.
	Teacher's Rating Scale of Parental Nurturance Control	mothers	Rating scale	Teacher agreement ranged from .62 to .41.

TABLE 5.9

Illustrative Examples of Noncognitive Measures in the Psychomotor Domain**

Area Measured	Name of Test	Age	Type of Measure	Reliability, Validity and Additional Information
Physical Coordination General	Daily Activity Record	Any age, disabled	Rating scale	None available
	Detroit Tests of Learning Aptitude	2.5-6	Performance test	Information available; reliabilities low.
	Impulse Scale	7-10.5	Performance test	Part of Tranicell's laterality tests; (n = 81 7 year olds) split-half reliability = .91; test-retest reliability after 28 days = .86.
	Merrill Palmer Scale of Mental Tests	2.5-6	Performance test	Information available; reliabilities low.
	Oseretsky Test of Motor Proficiency	2.5-8.5	*Performance test	Information available; reliabilities low.
	Physical Fitness Tests	8-17, retarded	Performance test	Standard scores for retarded available; no reliability or validity data available.

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*Group administered; those without * are individually administered.

**Sources for Table 5.9 are Buros (1965); Educational Testing Service (1968); Hoepfner, et al. (1970); Hoepfner, Stern & Nummedal (1971); Johnson & Bommarito (1970); and Shipman (1970).

TABLE 5.9 (Continued)

Area Measured	Name of Test	Age	Type of Measure	Reliability, Validity and Additional Information
	Right-Left Discrimination	5-adult	Performance test	Norms for normal children 6 to 9; corrected odd-even reliability = .88-.92; equivalent forms reliability = .72 (20 min. apart) and = .67 (10 weeks apart).
	Ring and Peg Tests of Behavior Development	2.5-6	Performance test	Internal consistency > .90; all other reliabilities < .70.
	School Readiness Checklist	2.5-5	Rating scale	Information available; reliabilities low.
	Southern California Perceptual Motor Scales	2.5-7	Performance test	Information available; reliabilities low.
	Valett Developmental Survey of Basic Learning Abilities	2.5-6	Performance test	Information available; reliabilities low.
Physical Coordination Eye-Hand	Anton Brenner Developmental Gestalt Test of School Readiness	5-6	Performance test	Test-retest reliability between .70 and .80; internal consistency between .80 and .90.
	Bender Visual Motor Gestalt Test	2.5-7	Performance test	Information available; reliability low.

TABLE 5.9 (Continued)

Area Measured	Name of Test	Age	Type of Measure	Reliability, Validity and Additional Information
	Children's Visual Achievement Form	3-8	Performance test	None available.
	Clymer-Barrett Prereading Battery Visual Motor Coordination	5-7	*Performance test	Internal consistency $>$ .90.
	Diagnostic Reading Tests--Eye-hand and Motor Coordination	5-6	*Performance test	Information available; reliabilities low.
	Developmental Test of Visual-Motor Integration	2.5-6	*Performance test	Information available; reliabilities low.
	Gales-MacGinitie Reading Tests--Readiness Skills-Visual Motor Co-ordination	5-7	*Performance test	Information available; reliabilities low.
	Marianne Frostig Developmental Test of Visual Perception	2.5-7	*Performance test	Information available; reliabilities low.

TABLE 5.9 (Continued)

Area Measured	Name of Test	Age	Type of Measure	Reliability, Validity and Additional Information
	Metropolitan Readiness Tests--Copying	5-6	*Performance test	Internal consistency between .80 and .90; alternate forms reliability between .70 and .80.
	Minnesota Percepto-Diagnostic Test	5-6	Performance test	Internal consistency between .80 and .90.
	Moore Eye-Hand Co-ordination Test	2.5-5	Performance test	Test-retest reliability > .90.
	Reading Aptitude Tests--Motor	5-7	Performance test	Information available; reliabilities low.
	Rutgers Drawing Test	2.5-6	Performance test	Information available; reliabilities low.
	Screening Test for the Assignment of Remedial Treatments--Visual Copying	2.5-6	*Performance test	Test-retest reliability > .90; internal consistency between .80 and .90.
	Screening Test of Academic Readiness--Copying	2.5-6	*Performance test	Information available; reliabilities low.
	Seguin Form Board	2.5-6	Performance test	Part of Arthur Point Scale of Performance Tests; used in ETS Longitudinal Study--information available.
	Slosson Drawing Co-ordination Test	2.5-6	*Performance test	Information available; reliabilities low.

TABLE 5.9 (Continued)

Area Measured	Name of Test	Age	Type of Measure	Reliability, Validity and Additional Information
	Southern California Motor Accuracy Test	2.5-6	*Performance test	Test-retest reliability $>$ .90; internal consistency between .70 and .80.
	Wechsler Preschool and Primary Scale of Intelligence Geometric Design	2.5-7	Performance test	Internal consistency between .80 and .90.
Physical Attributes	Apgar Score	all	Hospital record	Birth condition description.
	Bicycle Safety	6-11	Performance and skills test	None available.
	Body Measurement	4-17	Anthropometric measures	Information available.
	Child and Family Medical History	all	Interview	Medical background; none available
	Height and Weight	all	Anthropometric measures	None available.
	Physical Examination	all	Medical examination	None available.
	School Survey Form	all	Questionnaire	Designed to detect handicaps of children; none available.
	Teacher Questionnaire on Child's Health	all	Teacher interview	Describes child's reactions to illness, etc.

TABLE 5.9 (Continued)

Area Measured	Name of Test	Age	Type of Measure	Reliability, Validity and Additional Information
	Vigor Measures	all	Performance tasks	Measures activity and vigor levels; used in ETS Longitudinal study--information available.
Sensory Attributes--Audition	Auditory Discrimination Test	5-8	Performance test	Test-retest reliability = .91 (n = 109); correlation with intelligence = .32.
	Auditory Screening	3.5-8	Performance test	None available.
	Boston University Speech Sound Discrimination Picture Test	5-7	Performance test	Split-half reliability = .88 (n = 434 kindergarten and 1st grade children).
	Children's Auditory Test	3-5	Performance test	None available.
	Irwin Articulation Test	3-16, cerebral palsied children	Rating scale	Parallel form (2 weeks apart) correlation = .98 (n = 147); Kuder-Richardson coefficients range .65 to .97.
	Massachusetts Hearing Test	6-adult	*Screening test	None available.
	New Group Pure Tone Hearing Test	6 up	*Hearing test	None available.
	Robbins Speech Sound Discrimination and Verbal Imagery Type Tests	4 up	Performance test	None available after 10 years.
	Styear Hearing Tests	0-7	Performance test	None available.

TABLE 5.9 (Continued)

Area Measured	Name of Test	Age	Type of Measure	Reliability, Validity and Additional Information
Sensory Attributes--Vision	Analysis of Visually Perceived Forms	4.5-8	Performance test of form analysis	None available; also used to distinguish normal from brain damaged children.
	Developmental Test of Visual Motor Integration	3.5-8	Performance copying task	None available.
	Dvorine Color Vision Test	3 up	Color perception test	None available.
	Eames Eye Test	5 up	Visual screening test	Information available; correlations with examination of eye doctor = .97 (n = 100); test-retest reliability = .93 (n = 100).
	Elkind's Visual Pictures	6-11	Perceptual test	Greater increase in scores with greater chronological age; scores distinguish between poor and good readers.
	Finger Localization Test	5 to adult	Performance test	Split-half reliability = .91 (n = 158); practice effect between 20 minutes is negligible.
	Hidden Figures Test	6-11	Test of figure ground discrimination	Information available.
	Johns Hopkins Perceptual Test	3.5-8	Form discrimination test	Used in ETS Longitudinal Study--KR 21 reliability coefficient = .74; other information available; test-retest reliability after 17 days = .93.
	Keystone Tests of Binocular Skills	6-8	Test of monocular and binocular vision	None available.

TABLE 5.9 (Continued)

Area Measured	Name of Test	Age	Type of Measure	Reliability, Validity and Additional Information
	New York School Vision Tester	5 up	Eye screening test	None available; known as School Vision Test; adaptation of the Ortho-Rater.
	Spache Binocular Reading Test	6 up	Eye movement test	Used for diagnostic problems; information available.
	Stycar Vision Test	3-7	Vision test	None available.
	Synthesis of Visually Perceived Forms	5-8	Performance test of perceptual integration	None available; also used to distinguish normal from brain damaged children.
	T/O Vision Testers	3 up	Vision test	None available.
	Test for Color Blindness	6 up	Color blindness test	None available.
	Visual Perceptual Inventory	4.5-8	Performance test of stimulus, rotations	KR 20 reliability in low 90's (n = 291). ANOVA main effects of age and race.
	Visual Examination	all	Medical examination	None available.
Sensory Attributes--Touch	Stereognostic Test	3-5	Test of tactual perception	Tentative norms for 3-, 4-, 5-year olds (n = 156); no reliability or validity data.
Diagnostic Tests	Burks' Behavior Rating Scale	6-12	Rating scale	Used to diagnose organic brain dysfunction; information available.

TABLE 5.9 (Continued)

Area Measured	Name of Test	Age	Type of Measure	Reliability, Validity and Additional Information
	Child Rating Scale	6-15	Rating scale	Used to diagnose hyperkinesis; test-retest over 1 week = .84; positive correlation (.56) with sex; correlations with electronic measurements of body movement in .20.
	Ellis Visual Design Test (Goldenberg Version)	Elem. child with Binet vocab. IQ 80	Performance test	Used to diagnose organic brain disorder; information available.
	Graham-Ernhart Block-Sorter Concepts Test	3-5	Performance test	Used to diagnose brain injury; test-retest over 6 months = .70 and .61 (n = 37); correlation with neurologist's findings = .71 (n = 185).
	Graham-Ernhart Copy-Forms Test	3-5	Performance test	Used to diagnose brain injury; split-half reliability = .97 (n = 55) test-retest reliability for raw scores = .86 and for standard scores = .61 (n = 33).
	Perceptual Motor Battery	3-5	Performance test	Used to diagnose brain injury; test-retest over 6 months = .58 (n = .34); some subscale reliabilities low.
	Strauss-Werner Marble Board Test (Goldenberg Version)	6-12	Performance task	Used to diagnose organic brain disorders; information available.

each table. In some areas -- such as physical coordination (eye-hand), self-concept, and social skills -- where there were too many measures to include, a representative sample was chosen. Measures with known standardization information were included first.

The measures for the socio emotional domain can be divided into 'projective' and 'nonprojective' techniques. Projective techniques are more or less unstructured situations in which the child presumably reflects unconscious attitudes, thoughts, emotions, and feelings about other people. The stimuli [illegible] projective tests include pictures, inkblots, incomplete sentences, [illegible] dolls, or drawings. These techniques of testing, developed in a clinical setting, are impractical in the average classroom because of cost, administration time, and the need for specialized interpretation.

On the other hand, nonprojective techniques are more feasible for the average classroom setting. These techniques include self-report inventories, rating scales, situational measures, and observational measures. Most of the work to date has been in the development of self-report inventories and rating scales, which require less time to administer and interpret. Self-rating inventories focus on a child's preferences for things and people or on his perceptions about himself. For young children, these measures are semi-projective techniques in which the child chooses the picture or words "most like him" from among several possibilities depicting various attitudes or interests. Rating scales are used to see how someone else, usually the teacher, judges the child on a certain attribute.

In addition to the noncognitive instruments listed in Tables 5.8 and 5.9, there are informal judgments of children, teachers, and parents, which are used every day in evaluating the noncognitive area. These informal estimates generally get at the amount of engagement, attention, happiness and constructive activity shown by the child. Most programs now make many decisions on the basis of informal assessments of this kind.

Other Approaches to Evaluation

The evaluation instruments that we have discussed have generally embodied a traditional psychometric assumption that program effects should be detected through something added to or subtracted from the child -- more intelligence, less anxiety, more achievement, more self-concept, less fear of failure, etc. Other forms of psychological testing are now intermittently coming into use, but they have not yet been influential in assessing the outcomes of projects. They have no certain standing as outcome indices; it is not known what predictive validity exists for them. Nevertheless, they are of interest. First, they relate to a trend in contemporary psychological research on individual differences -- the trend towards looking at human differences in style and mode of processing information as more informative than the attempt to measure stable "abilities" or "traits". Second, they approximate a more natural evaluative procedure. Whatever the strengths or weaknesses of tests, it is clear that teachers and administrators in schools make many decisions independent of information from them. Decisions imply some evaluative process that undoubtedly involves more than an examination of results. Probably, teachers and administrators apply some kind of goodness-of-process standard to the observed situation. Inevitably this approach is highly personal and subjective, akin to judging program performance by "the light in the kids' eyes". The newer modes of testing move toward a nonpersonal and objective version of this kind of analysis of project operations. The observational methods emphasize process--the way in which a child works on problems, or the way in which group process (child-child, teacher-child, child-teacher) takes place. They see the child in the natural milieu, as opposed to encounters with a formal testing procedure. They are sensitive to organizational and management factors, management of the social and cognitive environment by the child, and organizational factors as they apply to a number of actors involved in the learning setting. None of these testing methods is wholly new, but as the limits of traditional testing have been reached in project evaluation there have been increasing efforts in this direction.

Cognitive Style

One new approach to testing is a variety of procedures for estimating "cognitive styles" (Witkin et al., 1976; Messick, 1969; Kagan and Kogan, 1970; Shipman, 1971). Messick offers a definition:

> Cognitive styles are information-processing habits. They are characteristic modes of operation which, although not necessarily completely independent of content, tend to function across a variety of content areas. (1969, p. 114)

Messick also gives examples of dimensions in cognitive styles:

1) Field independence vs. field dependence -- an analytical, in contrast to a global, way of perceiving which entails a tendency to experience items as discrete from their backgrounds...

2) Scanning -- ...individual differences in the extensiveness and intensity of attention deployment, leading to individual variations in the vividness of experience and the span of awareness...

3) Breadth of categorizing -- consistent preferences for broad inclusiveness, as opposed to narrow exclusiveness...

4) Conceptualizing styles -- individual differences in the tendency to categorize perceived similarities and differences among stimuli in terms of many differentiated concepts, which is a dimension called conceptual differentiation...as well as consistencies in the utilization of particular conceptualizing approaches as bases for forming concepts -- such as the routine use in concept formation of thematic or functional relations among stimuli as opposed to the analysis of descriptive attributes or the inference of class membership...

> (5) Cognitive complexity vs. simplicity -- individual differences in the tendency to construe the world, and particularly the world of social behavior, in a multidimensional and discriminating way...
>
> (6) Reflectiveness vs. impulsivity -- individual consistencies in the speed with which hypotheses are selected and information processed...
>
> (7) Leveling vs. sharpening -- reliable individual variations in assimilation in memory. Subjects at the leveling extreme tend to blur similar memories and to merge perceived objects or events with similar but not identical events recalled from previous experience. Sharpeners...are less prone to confuse similar objects and, by contrast, may even judge the present to be less similar to the past than is actually the case...
>
> (8) Constricted vs. flexible control -- individual differences in susceptibility to distraction and cognitive interference...
>
> (9) Tolerance for incongruous or unrealistic experiences -- a dimension of differential willingness to accept perceptions at variance with conventional experience... (*ibid.*, pp. 11-13)

Cognitive style instruments are sometimes now employed in project evaluation batteries. Their use is still problematic, however. First, the generally bipolar dimensions of cognitive styles do not have a simple implication of desirability or utility as do ability assessments. Generally, it seems better to have more of an ability but it is not so immediately clear whether it is desirable to be field independent or field dependent, a high scanner or a low scanner. Second, there are few existing correlations of the cognitive style instruments with school achievement measures or other significant measures. The most extensive study has been the factor analysis of data from the Head Start Longitudinal Study by the Educational Testing Service (Shipman, 1971). Two primary factors ran across all components of the test battery: 1) a general ability, "g", or information-processing skills dimension; and 2) a response tempo dimension. The second dimension was found to be independent of age, sex, or SES, unlike the first. But these results are a first attempt and must await replication before they can assume much practical importance. Third, there is little to suggest that the cognitive styles of children can be reached through intervention procedures. For all these reasons, present use of cognitive style instruments for evaluation is in an exploratory phase.

Criterion-referenced Evaluation

Existing psychometric instruments are usually norm-referenced. Standardized cognitive tests are obviously so, but noncognitive measures are as well -- the norm in this case is societally-acceptable behavior. The purpose of giving a norm-referenced test is to rank individuals. A child's score on tests of IQ or achievement takes on meaning only when it is compared with the distribution of scores in the norming sample. For a child to be at the 50th percentile, the score must be higher than half of those in the norming sample and lower than the other half. But very often the score says little about what the child has learned or how effectively a program was implemented. Two children may both score at the 70th percentile on a mathematics achievement test, yet have correctly answered different questions because they had learned different skills. Since the purpose of a norm-referenced test is to produce variability on the scores of those taking it (to maximize the goal of getting a reliable rank order of children), items are not necessarily selected for their content validity but often for their ability to discriminate "good" and "bad" students.

In criterion-referenced testing (Popham & Husek, 1969; Glaser & Nitko, 1970; Cronbach, 1970) variability is irrelevant. Items are derived directly from the instructional goals and content. Inclusion of a given item in the test depends on its relevance to the criterion, not on how well it discriminates between students. Thus, obscure points are less likely to appear as questions in criterion-referenced tests, and -- in a successfully implemented program -- most students pass all or nearly all the items.

Criterion-referenced evaluation is primarily used either to diagnose the state of an individual's knowledge or skill on a particular subject, or as a proxy -- an operational definition -- for an intangible but desirable goal. Its most conspicuous use in child intervention programs has been in the Educational Testing Service's evaluation of "Sesame Street" (Ball & Bogatz, 1970; Bogatz & Ball, 1971). The educational goals of the program were translated into nearly thirty criterion-referenced subtests. The subtest battery permits a profile comparison of experimental and control groups across specific areas such as "Naming body parts" and "Recognizing numbers". Abilities in these areas are seen as an asset for the child entering school.[15] They also have value as a possible indicator of increase in a more general ability such as that presumed to be measured by IQ tests. Criterion-referenced tests are particularly applicable to programs with explicitly-stated goals. Their virtue is that -- if the items test the essential points -- precise information is gained on what skills have not been learned by each student. The evaluation of individualized instruction depends heavily on the development of criterion-referenced measures.

Observational instruments

In the past, observational techniques have been used primarily in basic research on children's behavior and family interactions (Barker, 1963, 1968; Sears et al., 1957, 1965; Wright, 1960, 1967). Naturalistic observations may range from informal "baby biographies" through to highly selective and structured time-sampling of specific behavior patterns.

---

[15] In this sense criterion-referenced tests used for evaluation are implicitly norm-referenced. Society must assign some 'face validity' or value to the criterion -- e.g., accept the idea that learning to name body parts or recognize numbers are appropriate, relevant and desirable behaviors for preschoolers.

Procedures for recording child behavior in home or preschool settings generally use one of two methods: (1) if the number of behavior categories is small, the observer may note the total number of occurrences of behavior in each category (e.g., expression of hostility to peers) over a period of time such as one-half hour (White et al., 1969); or (2) if the categories include details on verbal interaction or the material environment, it may be necessary to use a time-sampling technique -- every 15 or 30 seconds the observer records the child's predominant activity during the time unit (location, type of activity, person interacted with, objects employed, etc.) (Sears et al., 1965; Watts et al., 1972). Inter-observer reliabilities run .70 to .90 for well-developed observational programs such as those noted above.

Since naturalistic observation is now primarily a basic research technique used to obtain data on child-peer, child-adult, and child-environment functioning, development of instruments of this type is obviously needed. Yet newer instruments are often only slight improvements over previous efforts, for one or more of the following reasons:

-- the behaviors are not sufficiently defined in operational terms; the observer counts incidences of "dependency" rather than the times the child clings to an adult (Streissguth & Bee, 1972).

-- only certain pre-selected behaviors are observed.

-- the instrument is exported to situations where it is invalid. For example, a schedule developed for middle class preschoolers may be used with children of a different social class, age, and ethnic group. An observer from a different background -- or one who is obtrusive -- can affect behaviors, particularly in a home setting.

-- the behaviors of those with whom the child interacts are insufficiently recorded, prohibiting the establishment of antecedents and consequences.

With development, observational procedures in the classroom and in the home may well reflect social and emotional program effects not picked up by existing usage of ratings and tests.

A second important application of observational techniques is in the coding of classroom "goodness of process", i.e., recording classroom behaviors in an attempt to identify the elements of effective teaching. Observational instruments have been used as research tools for analyzing both individual behaviors -- cognitive and noncognitive -- and group or classroom interactions. In school settings they have attempted to isolate those components of classroom instruction which lead to effective teaching, commonly known as "goodness of process" measures. Only recently have observational instruments become an integral part of the evaluation of programs for children. The Head Start Planned Variations study, for example, has employed a classroom observation instrument for three years. Mirrors for Behavior (Simon and Boyer, 1970) provides a comprehensive review of the best known observation systems currently available (Table 5.10). It lists 79 measures, the majority of which were developed for classroom settings.

One reason why the many existing systems of classroom observation have not been used is that they are very expensive and time-consuming. Another reason, perhaps, is that the great majority of existing schemes rest on very superficial categorizations or breakdowns of classroom process. They do not rest on any very deep conception of what goes on in groups or classroom but, like the taxonomies of tests discussed previously, break apart the group process using the ordinary terminological distinctions of everyday English.

There are now the beginnings of more significant new observational systems based on structural analyses of group functioning (e.g., Bales, 1950), and ethnographic procedures developed by social anthropologists for analyses of observations made in different cultures (e.g., Jackson, 1968).

The most extensive observation technique (both in development and standardization) is the Indicators of Quality (Vincent, 1970), a classroom observation scale that attempts to translate quality of instruction into quantitative measures. Nearly 100 specialists in psychology and education were consulted regarding the criteria necessary for quality classroom instruction. Their consensus was that the most essential characteristics are individualization, interpersonal regard, creativity, and group activity. In the instrument itself the four criteria become 51 polarized items (i.e., scored +, -, or 0), 17 observable in teacher behavior, 17 in pupil behavior, and 17 in the interaction between teacher and pupils. Classroom observers are trained for three days, followed by six days of trial observation during which their ratings are cross-checked for inter-rater realibility. The scores obtained on the Indicators scale are then statistically related to factors under the control of the school administration, such as class size, teaching techniques, team teaching, etc.

Olson (1970) reported data gathered using the Indicators of Quality in 18,000 public elementary and secondary school classrooms. Because the participating school systems were self-selected, the resulting sample was largely suburban and almost entirely white. The findings translated into hypotheses and conclusions, are an indication of the type of information such observation schedules may yield on classroom teaching effectiveness:

Hypothesis #1: Subjects being taught are related to the criterion scores

...analysis verified subject taught as the second strongest predictor of the criterion...

Hypothesis #2: Types of classroom teacher are related to the criterion scores

Classrooms under the direction of substitute teachers scored at a very low level (just above zero) at both

Table 5.10

Focus of the Observation Systems

System	Affective	Cognitive	Psychomotor (body movement)	Activity (doing something)	Procedure or Routine Content	Sociological Structure (role, who to whom, etc.)	Physical Environment (material, equipment, etc.)	Other
1. AMIDON (MCS)	X	X						
2. AMIDON-HUNTER (VICS)	X							
3. ASCHNER-GALLAGHER		X		X	X			
4. BELLACK		X			X			
5. FLANDERS (FSIA)	X							
6. FLANDERS (EXPANDED)	X	X		X		X		
7. GALLAGHER		X		X				
8. HONIGMAN (MACI)	X			X	X			
9. HOUGH	X			X				
10. HUGHES	X		X	X	X			
11. JOYCE	X	X			X			
12. LINDVALL				X		X	X	
13. MEDLEY (OScAR 4V)	X	X			X			
14. MILLER	X	X						
15. MOSKOWITZ (Flint)	X							
16. OLIVER-SHAVER		X			X			
17. OPENSHAW-CYPHERT	X	X	X	X	X	X		
18. SIMON-AGAZARIAN (SAVI)	X	X				X		
19. SMITH (Logic)		X						
20. SMITH (Strategies)		X						
21. SPAULDING (CASES)	X		X	X				
22. SPAULDING (STARS)	X	X		X	X	X		
23. TABA	X	X			X			
24. WITHALL	X							
25. WRIGHT	X	X						
26. WRIGHT-PROCTOR	X	X		X				
27. ADAMS-BIDDLE	X	X	X	X	X	X	X	X
28. ALTMAN	X	X		X	X			
29. ANDERSON, A.	X	X				X		
30. ANDERSON, H.H.	X				X			
31. ARGYRIS	X	X				X		
32. BALES	X	X	X		X	X		
33. BARNES	X	X			X			
34. BLUMBERG	X							
35. BORGATTA (BSs)	X					X		
36. BROWN (TPOR)		X		X	X			
37. BROWN, et al. (FTCB)		X						
38. BUEHLER-RICHMOND			X			X		
39. CLEMENTS		X						
40. C.E.R.L.I. (CVC)	X	X			X	X		
41. DENNY-RUSCH-IVES (CCOS)	X	X		X				
42. DODL	X	X						
43. FULLER (FAIR 38)	X		X	X	X		X	
44. GALLOWAY	X		X					
45. HALL			X			X		
46. HERBERT (SAL)	X	X	X	X		X	X	X
47. HILL (HIM)	X					X		X
48. HONIGMAN-STEPHENS (SAP)		X		X			X	
49. HUNTER	X	X					X	
50. JANSEN	X			X	X			
51. JASON (MHOR)				X			X	
52. KOWATRAKUL	X		X	X				X
53. LONGABAUGH (R.F.)	X	X	X		X	X		
54. MACDONALD-ZARET		X						
55. MATTHEWS Teacher (SCAS)	X			X		X		X
56. MATTHEWS Student (SCAS)				X		X		
57. MELBIN	X			X	X	X		
58. McREL (MFA)	X	X			X			
59. MILLS (IPA)	X					X		
60. MOUSTAKAS-SIGEL-SCHALOCK	X		X	X	X	X		
61. OBER (RCS)	X							
62. PARAKH (PBCS)		X				X		
63. PERKINS Teacher	X							X
64. PERKINS Student	X			X				
65. RIBBLE-SCHULTZ	X	X						
66. RISKIN	X					X		
67. ROBERTSON	X	X	X	X				
68. [illegible]	X	X						
69. SCHALOCK (THI)	X	X	X	X	X	X	X	
70. SCHUSTER (STIMAIN)	X	X		X	X	X	X	
71. SNYDER	X							
72. SOLOMON (TIB)		X						
73. STEINZOR	X	X				X		
74. STUKAT-ENGSTROM	X	X	X	X	X		X	
75. TYLER	X	X						X
76. WAIMON	X	X			X			
77. WALLEN, et al. (STIPOS)	X	X	X	X				
78. WITHALL-LEWIS-NEWELL	X	X						
79. WRAGG	X							

Table 5.10

Coding Units Used

System	Listener Change	Speaker Change	Topic and Content Change	Time Limit	Time Sample	Audience Change	Language Change	Question Answer Response Unit
[illegible]	x			x				
[illegible]	x			x				
[illegible]	x	x						
[illegible]	x	x						
[illegible]	x			x				
[illegible]	x			x				
[illegible]			x					
[illegible]	x			x				
[illegible]	x			x				
[illegible]	x							
[illegible]	x			x				
[illegible]					x			
[illegible]	x	x						x
[illegible]	x							
[illegible]	x			x			x	
[illegible]			x		x			
[illegible]	x			x		x		
[illegible]	x	x		x				
[illegible]			x					
[illegible]			x					
[illegible]					x			
[illegible]					x			
[illegible]			x					
[illegible]	x							
[illegible]	x							
[illegible]	x							
[illegible]		x		x		x		
[illegible]					x			
[illegible]	x	x		x				
[illegible]	x					x		
[illegible]	x	x						
[illegible]	x	x			x			
[illegible]					x			
[illegible]	x			x				
[illegible]	x	x		x				
[illegible]					x			
[illegible]					x			
[illegible]					x			
[illegible]	x							
[illegible]	x	x		x				
[illegible]	x				x			
[illegible]	x			x				
[illegible]	x	x		x				
[illegible]	x			x				
[illegible]					x			
[illegible]	x							
[illegible]	x	x	x					
[illegible]					x			
[illegible]	x	x		x				
[illegible]					x			
[illegible]	x				x			
[illegible]					x			
[illegible]	x	x						
[illegible]	x	x						x
[illegible]	x			x				
[illegible]	x			x				
[illegible]	x	x		x				
[illegible]	x			x				
[illegible]	x	x						
[illegible]	x	x		x				
[illegible]	x	x		x				
[illegible]	x	x		x				
[illegible]	x				x			
[illegible]	x				x			
[illegible]	x	x						
[illegible]			x		x			
[illegible]					x			
[illegible]	x							
[illegible]	x			x				
[illegible]	x	x				x		
[illegible]	x	x						
[illegible]					x			
[illegible]	x							
[illegible]				x				
[illegible]	x	x						
[illegible]	x	x						
[illegible]					x			
[illegible]	x			x				
[illegible]	x			x			x	

Table 5.10

Collecting & Coding Methods

System	Video and/or Audio		More than one observer or coder needed
	Not Required	Required	
[illegible]	X		
[illegible]	X		
[illegible]		X	X
[illegible]		X	X
[illegible]	X		
[illegible]	X		
[illegible]		X	X
[illegible]	X		
[illegible]	X		
[illegible]		X	X
[illegible]	X		
[illegible]	X		
[illegible]	X		
[illegible]		X	
[illegible]	X		
[illegible]		X	
[illegible]	X		X
[illegible]	X		
[illegible]		X	X
[illegible]		X	X
[illegible]	X		
[illegible]	X		
[illegible]		X	
[illegible]	X		
[illegible]	X		
[illegible]	X		
[illegible]		X	X
[illegible]		X	
[illegible]	X		
[illegible]	X		
[illegible]	X		
[illegible]	X		
[illegible]		X	
[illegible]	X		
[illegible]	X		
[illegible]	X		
[illegible]	X		
[illegible]	X		
[illegible]		X	
[illegible]	X		
[illegible]	X		
[illegible]	X		
[illegible]	●		
[illegible]	X		
[illegible]	X		
[illegible]		X	
[illegible]	X		
[illegible]	X		
[illegible]	X		
[illegible]	X		
[illegible]	X		
[illegible]	X		
[illegible]	X		
[illegible]		X	
[illegible]	X		
[illegible]	X		
[illegible]	X		
[illegible]		X	
[illegible]		X	
[illegible]	X		
[illegible]	X		
[illegible]	X		
[illegible]	●		
[illegible]	●		
[illegible]	X		
[illegible]		X	X
[illegible]		X	
[illegible]		X	
[illegible]	X		
[illegible]	X		
[illegible]		X	
[illegible]	X		
[illegible]		X	
[illegible]		X	
[illegible]		X	
[illegible]	X		
[illegible]	X		
[illegible]	X		
[illegible]	X		

● [illegible]

Table 5.10

Settings in Which System is Used as Reported by Author

Non-Classroom Settings System	Commercial or Industrial	Counseling or Therapy	Group Dynamics	Other	Classroom Setting Classroom – Teacher, pupils and subject matter content being dealt with System	For Any Subject Matter	For Specialized Focus
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

* System may be used in more than one setting.

Table 5.10

Population Observed

Non Classroom Settings

System	Small Groups (Family, Task, Training)	Family Dyads	Counselors or Therapists with Patient	Administrative Supervisors and Supervisees
1. [illegible]				
2. [illegible]				
3. [illegible]				
4. [illegible]				
5. [illegible]				
6. [illegible]				
7. [illegible]				
8. [illegible]				
9. [illegible]				
10. [illegible]				
11. [illegible]				
12. [illegible]				
13. [illegible]				
14. [illegible]				
15. [illegible]				
16. [illegible]				
17. [illegible]				
18. [illegible]	X	X	X	X
19. [illegible]				
20. [illegible]				
21. [illegible]				
22. [illegible]				
23. [illegible]				
24. [illegible]				
25. [illegible]				
26. [illegible]				
27. [illegible]				
28. [illegible]				
29. [illegible]				
30. [illegible]				
31. [illegible]	X			X
32. [illegible]	X			
33. [illegible]				
34. [illegible]				X
35. [illegible]	X			
36. [illegible]				
37. [illegible]				
38. [illegible]				
39. [illegible]				
40. [illegible]	X			
41. [illegible]				
42. [illegible]				
43. [illegible]				
44. [illegible]				
45. [illegible]	X	X	X	X
46. [illegible]				
47. [illegible]	X			
48. [illegible]				
49. [illegible]				
50. [illegible]				
51. [illegible]				
52. [illegible]				
53. [illegible]	X	X	X	
54. [illegible]				
55. [illegible]				
56. [illegible]				
57. [illegible]				X
58. [illegible]				
59. [illegible]	X			
60. [illegible]		X	X	
61. [illegible]				
62. [illegible]				
63. [illegible]				
64. [illegible]				
65. [illegible]				
66. [illegible]	X			
67. [illegible]				
68. [illegible]				
69. [illegible]				
70. [illegible]				
71. [illegible]			X	
72. [illegible]				
73. [illegible]	X			
74. [illegible]				
75. [illegible]				
76. [illegible]				
77. [illegible]				
78. [illegible]				
79. [illegible]				

Classroom Setting

Classroom: Teacher, pupils and subject matter content being dealt with

System	Teacher Only	Pupil Only	Teacher and Pupil
1. AMIDON (MCS)			X
2. AMIDON-HUNTER (VICS)			X
3. ASCHNER-GALLAGHER			X
4. BELLACK			X
5. FLANDERS (IIA)			X
6. FLANDERS (EXPANDED)			X
7. GALLAGHER			X
8. [illegible]			X
9. HUGHES			X
10. [illegible]			X
11. JOYCE	X		
12. LINDVALL		X	
13. [illegible]			X
14. MEUX	X		
15. [illegible]			X
16. OLIVER-SHAVER			X
17. OPENSHAW-CYPHERT	X		
18. [illegible]			X
19. [illegible]			X
20. [illegible]			X
21. [illegible]		X	
22. [illegible]	X		
23. TABA			X
24. WITHALL	X		
25. WRIGHT			X
26. WRIGHT-PROCTOR			X
27. ADAMS-BIDDLE			X
28. ALTMAN			X
29. ANDERSON, H.			X
30. [illegible]			X
31. ARGYRIS			
32. BALES			
33. BARNES			X
34. BLUMBERG			
35. BORGATTA (BSs)			
36. BROWN (TPOR)	X		
37. BROWN, et al. (FTCB)			X
38. BUEHLER-RICHMOND			X
39. CLEMENTS	X		
40. [illegible]			X
41. DENNY-RUSCH-IVES (CCRS)			X
42. DODL			X
43. [illegible]			X
44. GALLOWAY			X
45. HALL			
46. HERBERT (SA)			X
47. HILL (HIM)			
48. HOUSTON-STEPHENS (SAA)		X	
49. HUNTER			X
50. [illegible]			X
51. [illegible]	X		
52. KOWATRAKUL		X	
53. [illegible]			
54. [illegible]			X
55. [illegible]	X		
56. [illegible]		X	
57. [illegible]			
58. [illegible]			X
59. [illegible]			X
60. [illegible]			
61. [illegible]			X
62. [illegible]		X	
63. [illegible]	X		
64. [illegible]		X	
65. [illegible]			X
66. [illegible]			
67. [illegible]	X		
68. [illegible]			X
69. [illegible]			X
70. [illegible]			X
71. [illegible]			
72. [illegible]	X		
73. [illegible]			
74. [illegible]	X		
75. [illegible]			X
76. [illegible]	X		
77. [illegible]			X
78. [illegible]			X
79. [illegible]			X

More than one population may be observed by a system

Table 5.10

Usage of Systems

System	Number of Subjects Observed					System	Purpose of Observation as Reported by Author		
	LESS THAN THREE		THREE OR MORE						
	One Only	Two Only (Dyad)	In Classroom Setting	Non-Classroom Setting	Point Time Sample (one person at a time until sampling exhausted)		Research	Training by Feedback of Observation Data	Evaluation of Personnel, Materials or Methodology

the elementary and secondary levels. Even student teachers and teacher aids were found to score as much as 4.7 mean points higher.

Hypothesis #3: Styles of educational activity are related to the criterion scores

No other variable showed as strong a relationship with the criterion scores...

...school system performance scores on *Indices of Quality* could be greatly improved by increasing the incidence of *small group work*, *individual work*, *discussion*, *laboratory work*, *pupil report*, and *demonstration*...

A similar improvement in scores could be effected by decreasing the frequencey of teachers' using' the lowest scoring styles, *lecture*, *question/answer*, *seat work*, *movies*, etc. The present data indicate a heavy reliance on the less effective styles.

Hypothesis #4: School system grade levels are related to criterion scores

The general trend was toward higher scores for the lower grades.

...the behavioral signs of the 4 indicators were less in evidence on the top end of the grade hierarchy.

Hypothesis #5: Number of adults in the classroom is related to criterion scores

In the elementary, 2-adult classroom situations recorded somewhat higher scores (1.30 mean points), but in the secondary they were more than 3 points lower than classrooms where one adult was present.

...the findings suggest that school systems should have a definite set of role expectations for the participants in multiple adult classroom situations such as team teaching.

Hypothesis #6: Class size is related to criterion scores

...smaller classes produced significantly higher scores than large ones (but especially at the elementary level).

Hypothesis #7: Sex of teacher is related to the criterion scores

Rejected.

Hypothesis #8:	Days of the week are not related to the criterion scores
	Rejected. Monday observations recorded substantially lower mean scores, whereas for Fridays the reverse was true.
Hypothesis #9:	Half of period is not related to criterion scores
	Supported.
Hypothesis #10:	Time of day is not related to the criterion scores
	Rejected.
Hypothesis #11:	Number of non-white students is not related to the criterion scores
	Supported. (Note, however, the bias of the sample in having less than 5 non-white students per class.)

The findings produced by the Indicators of Quality instrument correspond reasonably well with educators' judgments of what makes for quality in a classroom. School achievement indices often do not. But, again, it remains to be seen what useful predictive validity this observational system will have, what variance it picks up in significant later outcomes for children. At the moment, no other observational system at any level of intervention is better developed or better explored.

Family Intervention Evaluation

Program Goals and Evaluation

Goals for programs of family intervention are of two main types, global and specific. Global goals are set forth when the family is envisaged as an interacting system of individuals in which some system property has been disturbed. The family is considered to be maladjusted, in conflict, poorly integrated, or caught in some psychoanalytic bind. The desired goal is the reduction of intrafamilial stress, or an increase in the happiness or well-being of the individual members of the group. Specific goals are set forth when some characteristic of an individual or individuals in the family is regarded as deviant, negligent, or symptomatic. The father or mother spends no time with the children, or they are allowed to go ill-clothed or undernourished. Ignorance about adequate health precautions (e.g., the danger of plumbism) and child abuse are other examples. Specific goals are usually expressed as teaching the parents about the health, nutritional, or emotional needs of their young children.

Sussman (Chilman, 1966) considers research in family change to have two orientations which reflect the two types of goals. The first is the holistic (or global) approach, which involves

> . . . quantification of case material, a heavy reliance on the judgment of experts, and virtually no use of control groups or other procedures of the experimental method. The end result of this research is focused more on how well members of the family are adjusting to their circumstances and less on how these men and women on welfare are getting out of their deprived condition. (p. 41)

The other approach first seeks simple correlations and causal sequences between variables by controlled experimentaion, from which a more complex theory is then developed. Sussman argues that only by proceeding in this simple-to-complex manner can theory and evaluation evolve together. The holistic approach to evaluation may reveal success or failure, but fails to explain why they occur.

When the goals are translated into programs a dichotomy parallel to the global specific one appears: of the four types of family intervention programs described in Chapter 10, two (social casework and family therapy) customarily have more generalized aims than parent training and parent education programs. A basic issue in measuring the success of any family intervention program is that of matching it with an appropriate evaluation technique.

Kogan and Shyne (1966) categorize approaches to the evaluation of family intervention programs as either "tough-minded" or "tender-minded", and briefly trace the philosophies which have spawned them.

> The distinction between tough- and tender-minded indices is fundamental to all therapy, individual as well as family. In the tough-minded approach, a real change in a human being means a modification of his behavior; the tender-minded school requires a change in his mind-set (expectations, self-concept, psychic structure, defense mechanisms, etc.).

Tough-minded evaluation stems from Watsonian behaviorism. Its current theoretical expression is given by Pollard and Miller (1950), Eysenck (1961), and Wolpe (1958), among others, who stress behavior modification techniques in therapy. The most common indicators of successful intervention are changes in gross demographic measures (e.g., reduction in truancy rates, or the number of families on welfare roles) or specific behaviors (e.g., a child's aggression toward peers).

Tender-minded evaluation derives from analytically-oriented therapies directed at reducing intra-psychic stress (for example, Rogers, 1959). Measurement consists of assessing changes in attitudes -- presumably as a result of the intervention -- which in turn result in changes in behavior. The primary criticism of tender-minded or subjective evaluation is that the changes in attitude it finds may often be due to suggestion, and are not necessarily predictive of changes in behavior.

Types of Evaluation Instruments

Demographic measures. Using gross demographic measures to assess goal attainment has two distinct advantages: (1) they are "real-world" indices; that is, actual changes of the family's state vis a vis society which usually have direct economic consequences; and (2) they are inexpensive and easy to gather, often by consulting census and labor statistics or those of other federal, state, and local agencies.

A list of demographic indices includes employment, indebtedness, marital status; participation in educational, job-training, and community activities (e.g., voting and politics, PTA); utilization of community resources (e.g., health and family planning facilities); illegitimacy, illiteracy, delinquency, and arrests; housing status, eviction, health status, school achievement (as measured by attendance, grades, achievement and IQ tests) (Sussman in Chilman, 1966; Chilman, 1968). Data for many categories can be secured independently for each parent, and, where appropriate, each child. Few family intervention programs have used more than two or three of these indices, concentrating on employment, level of education, marital status, number of children per family, number of children born out of wedlock, and participation in community activities (Geismar, Gerhart, and Lagay, 1970; Gilmer, Miller, and Gray, 1970).

The greatest danger with gross demographic measures is possible unreliability: differing definitions, for example, of economic dependency by local and federal agencies may result in widely differing statistics regarding the success of a program (Chilman, 1966). A second difficulty is that demographic indicators can be misleading about a program's success: a job training program may provide excellent preparation for employment yet appear to be a failure if there is either no job referral service for the trainees or a labor glut; a delinquency reduction program would appear ineffective if a police crackdown began at the same time, and the demographic evaluation depended solely on arrest rates for juvenile offenders.

Direct observations. Direct observations have been primarily used in the evaluation of parent training programs based on social learning or behavior modification theory. They are well-suited for this in that the criterion for successful intervention is a change in the targeted behavior of the child.

The majority of behavior modification research has worked with case studies rather than with a sample size which would yield statistically significant results (Gelfand, 1969; Krumboltz and Thoresen, 1969; Rubin and Franks, 1969). Other difficulties with the behavior modification literature are (1) the manner of data presentation is notoriously poor, making assessment of individual improvement as well as comparison across experiments difficult or impossible; (2) the observation schedules used by various researchers are rarely compatible; and (3) observer reliability drops markedly when raters believe they are unmonitored (Patterson, 1971).

Although most behavior observation instruments have been developed for use in classroom settings (see Table 5.10) several have appeared in the last few years for evaluating parent-child behavior modification programs. Examples are the checklists of Hawkins (Hawkins et al., 1966) and Patterson (Patterson et al., 1970). All such instruments are time-unit based: the observer codes the interactive behavior of child and parent every five, ten, or "x" seconds, rather than analyzing specific incidents. Behaviors are grouped into classes, e.g., "deviant" or "oppositional" child behaviors; observers are given a list of sample behaviors (hits, cries, sticks out tongue, etc.) characteristic of each class. Interobserver reliabilities tend to run .70 and above (Hawkins, 1966; Wahler, 1969; Patterson, 1971). A requirement which many researchers overlook is that the data include records of each type of, for example, "oppositional" behavior, and not merely a total number of "oppositional" incidents -- in order to detect possible effects of intervention on some manifestations of the behavior class but not others.

The most common criticism of direct observation "counts" as a measure of the success of a behavior modification program has to do with whether the observed changes in outward behavior represent a true development or change in the child's attitudes, or merely a superficial alteration of the child's performance in a given environment. The evidence regarding the generalizability of behavior modifications from home to school settings is poor (Wahler, 1969; Patterson, 1971). Indeed, Patterson and his associates, who have performed the most extensive research in family behavior modification as well as work in school settings, have assumed non-generalizability and devised separate training procedures, one for parents and siblings, and another for teachers and peers (Patterson, 1971).

The virtue of direct observation evaluation is its "toughness" (in the Kogan and Shyne (1966) sense noted above), but as of yet little evidence in support of the stability of behavior changes -- both across social settings like home and school as well as longitudinally -- has been found. Reduction in the rate of undesirable behaviors is obviously a vital measure of the success of a family intervention program; what is still needed, however, is research which attempts to isolate causal relationships between parental and child behaviors.

Rating schedules. Two major efforts have been made to construct rating scales by which social caseworkers can assess change in family functioning: (1) the Geismar Family Functioning Scale (Geismar and Ayres, 1960; Geismar, 1971); and (2) the Community Service Society (of New York) Social Movement Scale (Hunt and Kogan, 1950; Kogan and Shyne in Chilman, 1966). Both have been used in evaluating a number of casework intervention programs (Chilman, 1966; Brown, 1968).

Although both scales rely on data from casework records and yield similar ratings when applied to the same family intervention project,[16] they have considerably different orientations. The Geismar Scale assesses family functioning as a unit across nine major dimensions: family relationships and family unity; individual behavior and adjustment, care and training of children, social activities, economic practices, household practices, health conditions and practices, relationship to project worker, and use of community worker. The CSS Scale considers each family member individually and analyzes change in four broad categories: adaptive efficiency, disabling habits and conditions, verbalized attitudes and understanding, and environmental circumstances. Judgments for the CSS Scale are less objective than for the Geismar Scale; both, however, are expressed on a seven-point scale, which facilitates comparison of total change scores on the two scales.

An indication of the reliability and validity of the Geismar Scale comes from data in a study cited by Geismar (1971), which found 87% agreement between raters on the initial status of family functioning, and 97% rating agreement after intervention. Internal validity was determined on a sample of 150 "socially-disorganized" families. Inter-correlations among the areas of social functioning ran .378 to .807; between area scores and total score, .578 to .779 (all significant at the .001 level). External validity was measured by comparison with scores on the CSS Scale: 40% of the ratings were identical; another 40% differed by only 1 point. Relatively high reliabilities and validities are not surprising, given that much of the Scale score in both cases (but particularly the Geismar) is directly based on demographic data -- which are consistent as long as the same data sources (e.g., labor or census records) are used.

Evaluation of intervention programs by rating scales has largely served a diagnostic function. It has pointed out the preponderance of instrumental or "tough-minded" problems over those of an interpersonal or emotional nature; it has shown that there is little (or even negative) relationship between the number of caseworker contacts and positive change in family functioning (Geismar, Gerhart, and Lagay, 1970). Rating scales of family functioning are the most comprehensive instruments currently in use because they combine demographic data with that of a more subjective nature (as perceived by the caseworker/observer). Information of value for program planning is obtained, however, only if the scores on the various subsections of the scale are retained. What needs to be done at this time is an analysis of the subsection scores on the pretest of a given target population -- it is likely that several patterns of family dysfunction will become apparent, which would necessitate alternative intervention strategies.

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16. Brown (1968, pp. 107-161) summarizes the results of the Chemung County Multi-Problem Family Project, which used both the Geismar and CSS scales. The results were almost identical between the two scales, even when only families showing extreme positive or negative movement were compared.

Attitude questionnaires. Attitude questionnaires are an inexpensive means of evaluating family intervention programs. The assumption is that a change in the parents' attitudes as the result of their education will result in positive effects on family functioning. The drawback of attitude scales is that score changes do not always reflect changes in the behavior of parents in the family setting (Becker & Krug, 1965; Chilman, 1968).

Two of the best known early parental attitude scales are the Parent Attitude Survey (PAS; Shoben, 1949) and the Mark Attitude Survey (Mark, 1953). The former was intended to find the mothers of children likely to become "problems" (i.e., those who would become delinquents or be assigned to guidance clinics); the latter to differentiate the mothers of male schizophrenics from the mothers of male nonschizophrenics. The format of both has served as a model for more recent instruments. Items consist of statements about parent and child roles (e.g., "A child should be seen and not heard"), with which the parent makes an agreement judgment (strongly agree, mildly agree, mildly disagree, strongly disagree).

Presently the most widely used scale is the Parental Attitude Research Instrument (PARI) developed by E. Schaefer and R. Bell of the National Institute of Mental Health (Schaefer and Bell, 1958). Various factor analysis studies of the PARI with women have revealed two major factors -- authoritarian control and hostility-rejection. (Summarized in Becker and Krug, 1965.) A number of researchers have found correlations between PARI scores on these two factors and measures of child behavior, provided the study sample is limited to upper-middle-class families. Scores on the authoritarian control subscales are related to aggressive behavior in preschool children (Marshall, 1961), and to imitation of the like-sexed parent (McDavid, 1959; Hartup, 1962). Hostility-rejection was found to be related to both defiant and withdrawn behaviors (Becker & Krug, 1964).

There are a number of weaknesses in the PARI. The first, mentioned above, is that consistent results are obtained only when upper-middle-class families are used. Controlling for educational level reduces much of the variance; Sears (1965) suggests that attitude scales like the PARI be used only for group comparisons (e.g., across SES levels) rather than for analyzing mother-child behavior relationships. A second criticism, true for all such attitude scales, is a response bias toward strongly endorsing positively-valued items (such as those expressing warmth), while not strongly endorsing negatively-valued items of hostility. Becker and Krug (1965) suggest more valid data could be obtained by using first person statements in attitude scales, while Schaefer has more recently (Chilman, 1968) advocated the use of naturalistic observations and clinical interviews, the increase in expense being outweighed by the validity of the data so obtained. Becker and Krug (1965) conclude that "the bulk of the evidence suggests that the PARI does not predict much very well" (p. 359).

Factor analysis with the PARI spawned considerable research on circumplex models of mother and child behavior (Schaefer, 1959; 1961; 1970). The two-factor analysis of mother behavior led to a similar model for children, with the dimensions of hostility-love and introversion-extroversion. Two-axis circumplex models of child behavior are summarized in Schaefer (1961), and more recently, in Kagan and Kogan (1970). Schaefer (1970) has developed a three-dimensional model, the primary factors being hostility-considerateness, introversion-extroversion, and perseverance-distractibility (or high and low task-oriented behavior). Instruments derived from these models appear rather unstable; for example, the Classroom Behavior Checklist based on Schaefer's (1961) model had an interrater reliability of .50 and a rate-rerate reliability (4 months intervening) of .65 for boys and .50 for girls. Other attitude scales have been developed by Gordon's group at the Institute for Development of Human Resources at the University of Florida. The "How I See Myself" scale has a format similar to the PARI but yields four factors. The "Social Reaction Inventory" is an adaptation of the Rotter (1966) Internal-External Scale for use with lower class mothers. There is no reason to believe these scales are any more valid than the PARI itself.

Conclusions

What can be said about the directions family intervention evaluation should take? The distinction between formative and summative evaluation is relevant; "tough-minded" measures (gross demographic indicators) are an example of the type of evaluation which provides little feedback as to what in the intervention program was effective, whereas careful observational analysis can provide information about the process of change in family functioning. Formative evaluation instruments (observations and interviews) are used in projects primarily aimed at gathering knowledge about the family; those of a summative type (demographic measures and, to a lesser extent, rating schedules based on casework records) are useful in determining the relative success of identical or very similar programs. The trend is toward attempting to understand family functioning rather than merely rating it on the basis of the normative criteria from which attitude scales are developed (viz., the criticism offered by Sears (1965) and Schaefer (Chilman, 1968) in the previous section). In short, the evaluation instrument must match the program goals.

We have said nothing about research methodology since adequate discussions exist elsewhere (Brim, 1965; Christensen, 1964; Chilman, 1966) and the problems -- sufficient sample size, randomization, presence of control groups, attrition, exportability -- are common to psychological and sociological research beyond that of family functioning. A procedure which should be followed is the inclusion of two control groups, one which is pretested and posttested but receives no treatment, another which is post-tested only. This was done in two of the best family intervention studies to date, the Chemung County Project (Brown, 1968) and the Family Life Improvement Project (Geismar, Gerhart, and Lagay, 1970), as a check against possible Hawthorne effects (i.e., that the awareness of being part of an experiment may affect the functioning of the pretest, no treatment, post-test group).

A final area of weakness in family intervention evaluation is essential for cost-benefit comparisons. Patterson (1971) notes that many projects (specifically those employing behavior modification techniques, but the comment applies equally well to all areas of family research) fail to give precise records of the actual extent of intervention -- both in time and expense. Such information should be a part of all future projects.

Chapter 6: Health Care for Children: Needs, Goals and Standards

Summary

Chapter 6 discusses the basic factors in early childhood health. There is clear evidence of persisting significant health risks to children and particularly to poor children. Some of the risks to which they are exposed clearly satisfy the conception of a "critical period" for intervention in early childhood. That is, the problems can only be solved by intervention in early childhood, or before by a concern for the health of the mother. The problems, if not corrected, lead to significantly reduced life chances for the child; even when available, compensatory "cures" are not as effective as prevention of these conditions.

Detailed differences in incidence of health problems among the poor and non-poor are not known. However, certain known health differences stand as indices for the constellation of health problems, and for the adequacy of the delivery of health services to the child. The indices picture the higher health risks of the poor child in the following ways:

-- Infant mortality rates show differences depending upon ethnicity, socioeconomic status, and parents' education.

-- Poor maternal factors, associated with poverty, are known to be associated with risks to the child. These include the mother's age, the spacing of her children, her overall health (present and past), and her proneness to prenatal complications.

-- Poverty is associated with reproductive complications resulting from the above or from other factors.

-- Poverty is associated with significant greater health problems during the early years: infectious diseases, malnutrition, and by-products of living conditions such as lead poisoning.

A discussion of the impact of present health systems on these problems reaches a fourfold conclusion.

First, the federal government does not invest in children in proportion to their numbers. The basic reason for this difference is that national policy has accepted provision of a minimum level of health services as a right for the aged. Such a right does not exist for children.

Second, the free enterprise, private market nature of much of the health care delivery system is leading to specialized corps of physicians (at the expense of primary care physicians) and an emphasis on acute

inpatient care in a fragmented manner. These trends particularly affect children (especially those whose families are too poor to buy protection or coordination), who need primary, preventive, ambulatory care.

Third, some of the special health risks of children -- early diagnosis and treatment of chronic disease, congenital problems, and handicaps, environmental dangers (accidents, lead paint poisoning, sanitation), and malnutrition or hunger -- have not been priorities in medical research and delivery.

Fourth, the potential impact of appropriate comprehensive health care of high quality on the child's later health status and utilization behavior has not been fully projected.

The quality of program analyses is greatly influenced by the quality of the underlying evaluative studies. Given the state of the art of health care evaluation, it is not possible to give a prescriptive list of goals and standards for children's health programs. It seems reasonably clear that all evaluations of children's health programs undertaken to date have been tentative, exploratory, and limited in their possibility of definitiveness. However, the recent literature has been projecting conceptions or models of evaluation which seem more adequate than previous models. It also seems clear that there are important gaps in what we term the "infrastructure", the system of beliefs and knowledge to which an evaluation must feed back.

Nevertheless, it seems reasonable that much better evaluations could be done, at least in the area of child health programs, using only existing data techniques and methodological resources, combined with a more comprehensive approach to evaluation. This hopefulness finds support in estimates presented on the existence of conditions for evaluation in selected federal social programs.

Chapter 6: Health Care for Children: Needs, Goals, and Standards

In previous chapters, we have reviewed one set of arguments about the critical nature of the early years of childhood -- dealing with the early psychological development of the child, his intellectual growth, and his social and emotional development. A parallel set of arguments has to do with the physical development and health of the child. The prenatal period and the first years of a child's life bring forth a series of "critical periods" in physical development during which he is susceptible to impairment which may confer lasting disadvantage. The task of minimizing such risks belongs partly to the family and partly to professional health services. Here, as in our earlier discussion, we find a series of government programs designed either to reduce environmental health risks to the child, improve the health services available to him, or increase the family's caretaking ability.

The issues of physical and psychological development are quite distinct in some senses, completely intermingled in others. The distinction arises from the fact that different knowledge, beliefs, and technologies are involved in dealing with those issues. First, different aspects of parental behavior are involved in the caretaking functions in each area. Our understanding of the family's role in the child's health or psychological development is limited; nevertheless such parental behaviors as seeking appropriate care for a child who is ill, and giving a child abundant emotional sustenance, are quite distinct. Second, the dichotomy between the issues of physical and psychological development is strengthened considerably by the fact that different institutions have been set up to cope with these issues. Doctors and teachers come from almost completely separate professional training programs; hospitals and schools rarely interact directly with each other. In other words, even for the parent or counselor who perceives the interrelatedness of physical and psychological development, structural considerations militate against concerted effort.

Despite these differences, there is a strong present trend to mesh the two sides of child development, and to design programs that can respond comprehensively to problems of either physical or psychological development. There are some good reasons for these efforts, because quite often both kinds of support are needed in order for either intervention to be effective. Psychological neglect of the child will often eventuate in health problems -- problems of malnutrition, plumbism, failure to thrive, abuse, or emotional disturbance. Physical problems -- various kinds of handicaps, mental retardation, chronic illness -- may make heavy demands on the family's psychic care of the child and on the child's social development. Because of this interrelation, the general tendency in the last decade has been to try to construct programs marked by "comprehensiveness" or "coordination", to bring together services in education, health, and family work. Head Start, Follow Through, and Parent-Child Centers are examples of such programs.

There appear to be some difficulties in providing such comprehensiveness ... the mind-body problem seems to be a professional problem as well as a philosophical one. There is still some question about whether we have succeeded in bringing about the desired intermingling of psychological and physical support, but the attempt to provide this coordination of services seems likely to continue.

This chapter reviews evidence concerning critical health problems in early childhood -- health problems which have the possibility of placing the child at a lasting disadvantage during life -- and presents information about the goals and standards for programs directed against such problems. The first section of the chapter outlines the medical research literature on critical health risks of early childhood; the second section discusses problems in health care delivery; and the third describes present efforts to arrive at goals and standards for health service programs.

Critical Health Problems in the Early Years

This section will examine the critical nature of the early years as reflected in health status indices and criteria. The section is subdivided into five interrelated categories. First, we discuss the importance of the index measure of infant mortality rates (both as representing risk of death to an infant and risk of impairment to survivors) and identify the population most at risk according to it. Second, we develop the index of prematurity as a measure of risk factors and outline the maternal conditions which lead to high rates of prematurity. Third, we detail the physiological and developmental risks to the child which prematurity imposes. Fourth, we document the environmental risks of infancy and childhood, demonstrating the interacting and compounding developmental and physiological effects of such things as malnutrition, infectious diseases, and adverse socio-psychological conditions on children already at risk.

Identifying the Population at Risk

Infant mortality rates have been found to be a highly sensitive indicator of the health risk of the larger population (Hunt, 1966), reflecting the existence of circumstances hostile to life -- an environment in which there are high rates of illness, faulty nutrition, poor conditions for birth, mothers in poor condition (Butler and Bonham, 1963; Illsley, 1967; Simpson, 1968). High infant death rates also suggest a high potential for damage among survivors:

> ...in identifying that segment of the general population which is subject to the highest rate of infant loss, we are, in effect, defining a group in whose surviving children we can expect to find not only a high incidence

> of present poor health, but a higher than average prevalence of primary neurological damage representing the aftermath of excessive exposure to hazards of gestation, birth, and early life. (Birch and Gussow, 1970, p. 13)

Infant mortality by ethnic group, socioeconomic status, region and education. Though figures vary from study to study, infant mortality rates have been found to be higher among the non-white population. The national infant mortality rates for deaths under one year per 1000 live births were 40.3 for non-whites and 21.8 for whites in 1966 (Aldrich and Wedgewood, 1970); in 1967 the rate for non-whites was 35.4 as compared with a rate for whites of 19.6 (NCHS, 1968). As figures 6.1, 6.2, 6.3 and 6.4 all reveal, although the overall rate has been decreasing, the discrepancy between white and non-white rates has been increasing, so that while in 1950 the non-white rate of 66% higher than the white, in 1965 it was 87% higher. The same trend is found in maternal mortality rates: before World War II, the non-white rate was twice as great as the white; since 1955 it has been four times as great. In 1967, maternal mortality was 69.5 per 100,000 live births for non-whites, as compared with 19.5 for whites. In terms of life chances, then, the non-white child runs a risk one and one-half times greater than the white child of death in the first month, and a risk more than two and one-half times greater of death in the first year (NCHS, 1965).

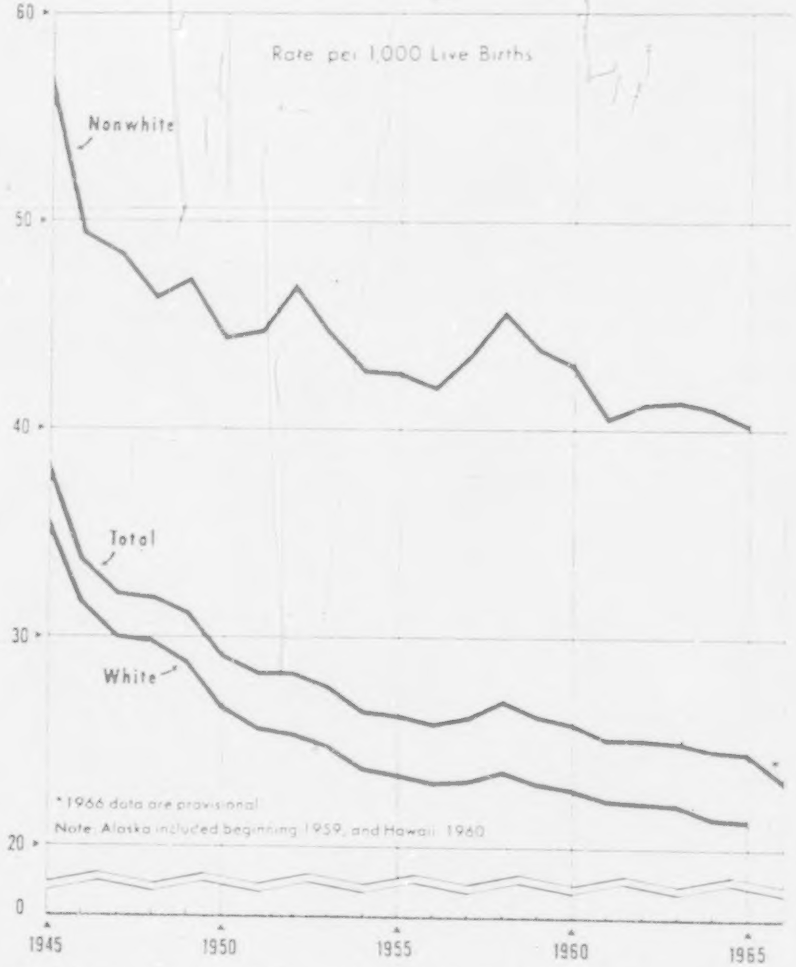
Figure 6.5 shows the national mortality statistics by ethnic group among non-whites. Blacks and American Indians show consistently higher rates than whites and Orientals. While the 1963 NCHS-PHS figures show a national infant mortality rate for non-whites of 41.5, the non-white rate in Arizona (predominantly Indian) was 56.2; the rate in California was 28.3 (reflecting the high proportion of Orientals among non-whites).

Infant mortality rates are also higher among groups with low family income. Bedger et al. (1966) shows the high congruence of socioeconomic status and race in relation to infant mortality: where family income declines below a certain point, both the percentage of non-whites and the infant mortality rate increase (in Birch and Gussow, 1970). It has also been suggested that infant mortality decreases as level of parent education increases, with family income levels controlled, although this trend seems to be more clear for whites than for non-whites. Thus it may be that education, rather than income, is the socioeconomic variable most closely associated with risk of infant mortality. Figure 6.6 indicates that infant mortality in Baltimore (1963) varied inversely with socioeconomic class, but that non-whites showed consistently higher rates regardless of socioeconomic status. Figures 6.7 and 6.8 show similar trends for New York City for 1961-1963.

Infant mortality rates also vary according to geographic region and according to type of residential area. Urban ghettos and rural areas have higher than average rates; Hunt (1970) showed that rates in rural

FIGURE 6.1

Trend in Infant Mortality, United States, 1945-1966



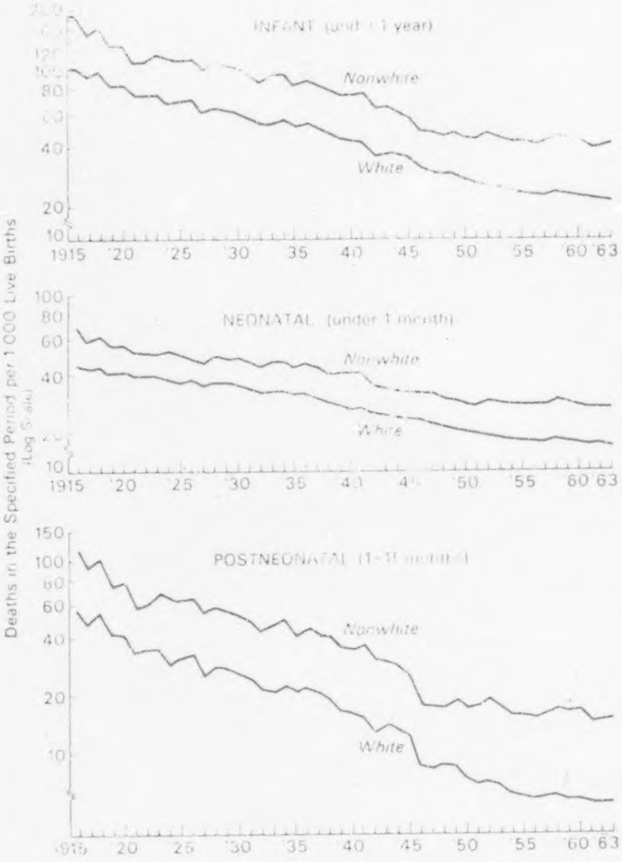
(Printed in Statistical Bulletin, Vol. 48, Metropolitan Life Insurance Company, Mar. 1967)
(Source: Reports of Division of Vital Statistics, National Center for Health Statistics)

American Journal of Public Health, Vol. 60(No. 4), p. 28 (figure 5).

FIGURE 6.2

Infant Mortality Rates by Age and Color, United States, 1915-1963

Hunt, 1966



Birch & Gussow, 1970, p. 36 (figure 2.6). Taken from Hunt, E., & Huyck, E. Mortality of white and nonwhite infants in major U.S. cities. HEW Indicators, 1966, 1-19.

FIGURE 6.3

Perinatal Mortality Rates by Color, New York City and HIP (Adjusted), 1955-57

	Perinatal Mortality Rate per 1000 Live Births and Fetal Deaths[a]			
Ethnic Group	New York City[b]	HIP (Adjusted)[b]	Standard Error of Difference	P[c]
Total (Excluding Puerto Rican)	27.9	23.1	1.2	<0.01
White	27.3	22.7	1.3	<0.01
Nonwhite	43.8	33.7	5.0	0.05

[a] Perinatal mortality rate is defined as infant deaths under seven days plus fetal death, 20 weeks gestation or more, per 1,000 live births and fetal deaths.

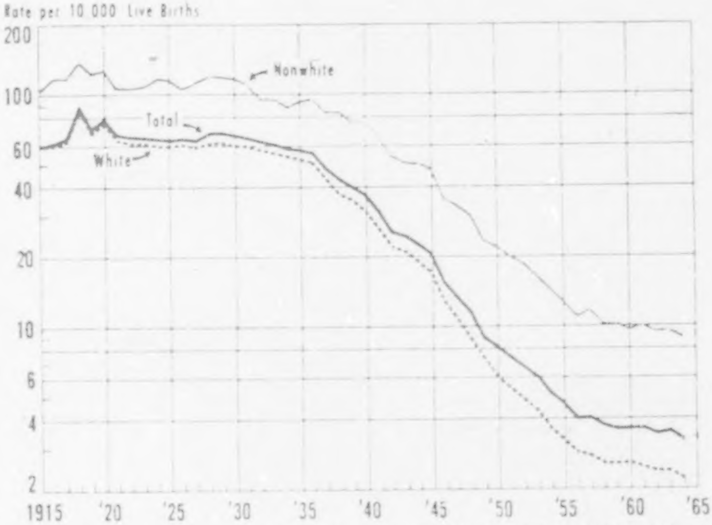
[b] New York City rates are observed rates for deliveries of women of all ages excluding those under 20 and age not stated.
HIP rates are adjusted to age of mother and ethnic distribution of New York City deliveries (excluding deliveries to women under 20 and age not stated).

[c] "P" represents the probability that NYC-HIP difference is due to chance factors.

Birch & Gussow, 1970, p. 34 (table 2.7). Taken from Shapiro, S., et al. Further observations on prematurity and perinatal mortality in a general population and in the population of a prepaid group practice medical care plan. American Journal of Public Health, 1960, 50, 1304-1317.

FIGURE 6.4

Maternal Mortality Rates by Color:
Birth Registration States or United States, 1915-1964



(Printed in "Infant, Perinatal, Maternal, and Childhood Mortality in the United States," by Shapiro, Schlesinger and Nesbitt, Harvard University Press, 1968)
(Source: National Center for Health Statistics)

American Journal of Public Health,
Vol. 60(No. 4), p. 29 (figure 6).

FIGURE 6.5

Infant, Neonatal, and Postneonatal Death Rates
by Specific Race & Sex: United States,
1966 Mortality Rates - per 1,000 Live Births
in Specified Group

	All Races	White	Negro	American Indian	Chinese	Japanese
Under 1 Year						
Total Rate	23.7	--	--	--	--	--
Male	26.6	23.5	44.0	39.0	10.5	12.2
Female	20.6	17.7	36.2	34.7	9.3	8.9
*Rate Ratio						
Male	--	1.00	1.87	1.66	0.45	0.52
Female	--	1.00	2.05	1.96	0.53	0.50
Under 28 Days						
Total Rate	17.2	--	--	--	--	--
Male	19.5	17.9	28.8	17.7	8.0	8.9
Female	14.8	13.2	23.0	15.1	5.7	7.1
*Rate Ratio						
Male	--	1.00	1.61	0.99	0.45	0.50
Female	--	1.00	1.74	1.14	0.43	0.54
28 Days - 11 Months						
Total Rate	6.5	--	--	--	--	--
Male	7.2	5.6	15.3	21.2	2.4	3.3
Female	5.9	4.4	13.2	19.6	3.6	1.8
*Rate Ratio						
Male	--	1.00	2.73	3.79	0.43	0.59
Female	--	1.00	3.00	4.45	0.82	0.41

$$\text{*Rate Ratio} = \frac{\text{Mortality Rate For Specified Race}}{\text{White Mortality Rate}}$$

U.S. Department of Health, Education and
Welfare, Health Services and Mental Health
Administration. National Center for
Health Statistics, Infant, neonatal and
postneonatal death rates by specific race
and sex.

FIGURE 6.6

Infant Mortality Rates in 1963
in Baltimore, Md., by Economic Fifths

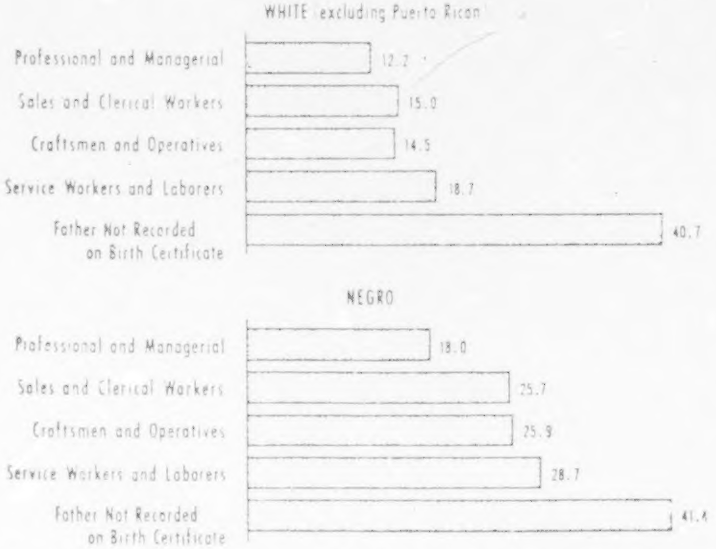
Economic fifth	White	Nonwhite
1 (high)	19.4	27.7
2	20.2	37.5
3	24.2	30.5
4	24.0	36.7
5 (low)	23.6	38.0

Adapted from Ambulatory Pediatrics by Green and Haggerty. Philadelphia: Saunders, 1968.

American Journal of Public Health,
Vol. 60(No. 4), p. 32 (table 1).

FIGURE 6.7

Neonatal Mortality Rates per 1,000 Live Births
by Occupation of Father and Race: New York City, 1961-1963



(Printed in "Infant, Perinatal, Maternal and Childhood Mortality in the United States," by Shapiro, Schlesinger and Nesbitt, Harvard University Press, 1968)

American Journal of Public Health,
Vol. 60(No. 4), p. 32 (figure 11).

FIGURE 6.8

Perinatal Mortality Rates by Occupation and Color,
New York City, 1961-1963

(All Births)

Occupational Group	Perinatal Mortality Rate	
	White	Negro
Professional, managerial, or technical workers	16.7	24.2
Clerical and sales workers	20.8	31.5
Craftsmen and operatives	20.9	32.9
Laborers and service workers	25.9	36.6

Birch & Gussow, p. 36 (table 2.6).
Taken from Yerby, A.S. The disadvantaged and health care. American Journal of Public Health, 1966, 56, 5-9.

and semi-rural counties were at least 10% above the national average, and that those rates were declining at a rate below the national average. Within urban areas, infant death rates are higher in sections designated poverty areas according to average income and education, and rates of employment, public assistance, and delinquency. The Chicago Commission on Urban Opportunity (Chicago Board of Health, 1965) divided the city of Chicago into poor and non-poor districts on the basis of those criteria and found that those districts labeled poor had the highest infant mortality rates. (See figures 6.9, 6.10, 6.11 and 6.12.) Rates in the poor areas were 45.5 per 1000 live births compared with 22.2 in the non-poor areas; further, the post-neonatal rates (after the first month of life) were 15.6 per 1000 survivors for poor areas and 4.9 for non-poor areas. Similarly, infant mortality rates in New York City vary according to district, with higher rates found in the sections of Manhattan, Brooklyn and the Bronx with the highest proportions of non-whites and Puerto Ricans.

Figure 6.13 shows the geographic distribution of mortality rates in the United States. The preponderance of rates above the national average is found in the South, especially in the Southeast. The 15 southern states with rates above the national average also have the highest concentration of families with incomes below $2000 a year. Over 50% of all non-white births in 1967 occurred in just 16 southern states and Washington; thus areas with high infant mortality rates have a predominance of both low-income and non-white population.

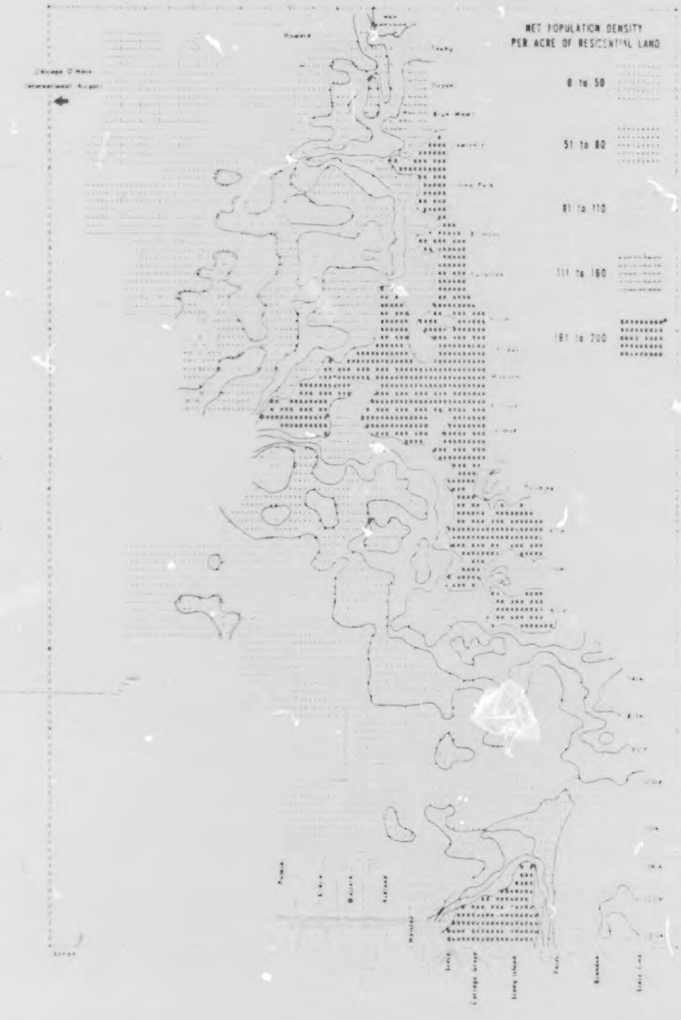
Thus residential area, income level, and color are to a great extent congruent as related to infant mortality rates, although it appears that non-whites may still be somewhat disadvantaged when family income is held constant. As we have shown, the significance of infant death rates is that high rates identify populations where both general health risk and the danger of permanent impairment to survivors is high. We shall now turn to a discussion of maternal condition as it bears on the outcome of pregnancy and the likelihood of damage to the infant.

Maternal Condition and the Risk of Reproductive Complications

The general health, nutrition, and physical history of the mother is related to the risk of development of reproductive complications, which are in turn associated with damage to the fetus resulting in death or infant morbidity. Prematurity, calculated by low birth weight, is commonly used as an index of reproductive complications. We will discuss below the specific risks associated with prematurity, and the relation of birth weight and subsequent damage to socioeconomic status and color. According to Birch and Gussow (1970), almost every complication of pregnancy and birth that is potentially damaging to the infant is more prevalent among the poor and the non-white. Pasamanick et al. (1956) showed that the incidence of complications is lower for low-income

FIGURE 6.9

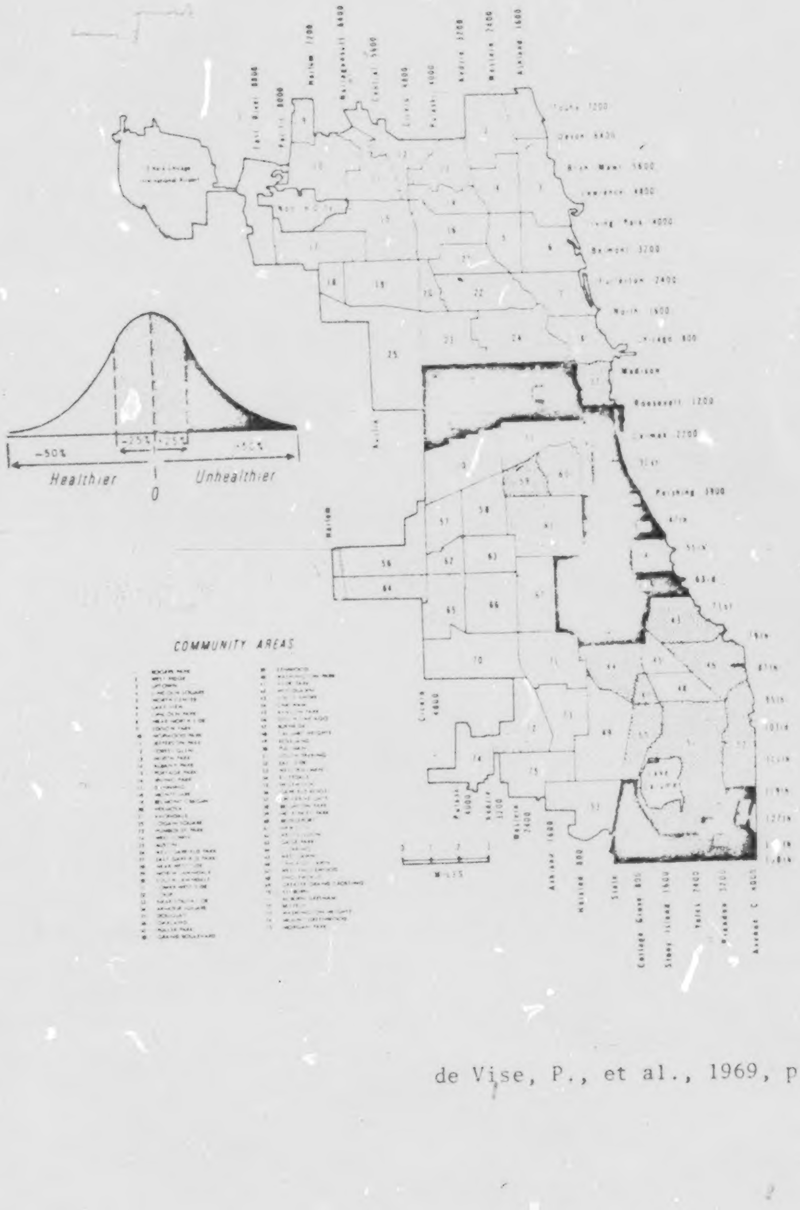
Net Residential Population Density, 1960


NET POPULATION DENSITY PER ACRE OF RESIDENTIAL LAND
0 to 50
51 to 80
81 to 110
111 to 160
161 to 200
Chicago O'Hare International Airport
Howard

de Vise, P., et al., 1969, p. 8.

FIGURE 6.10

Factor I: The Poverty Syndrome

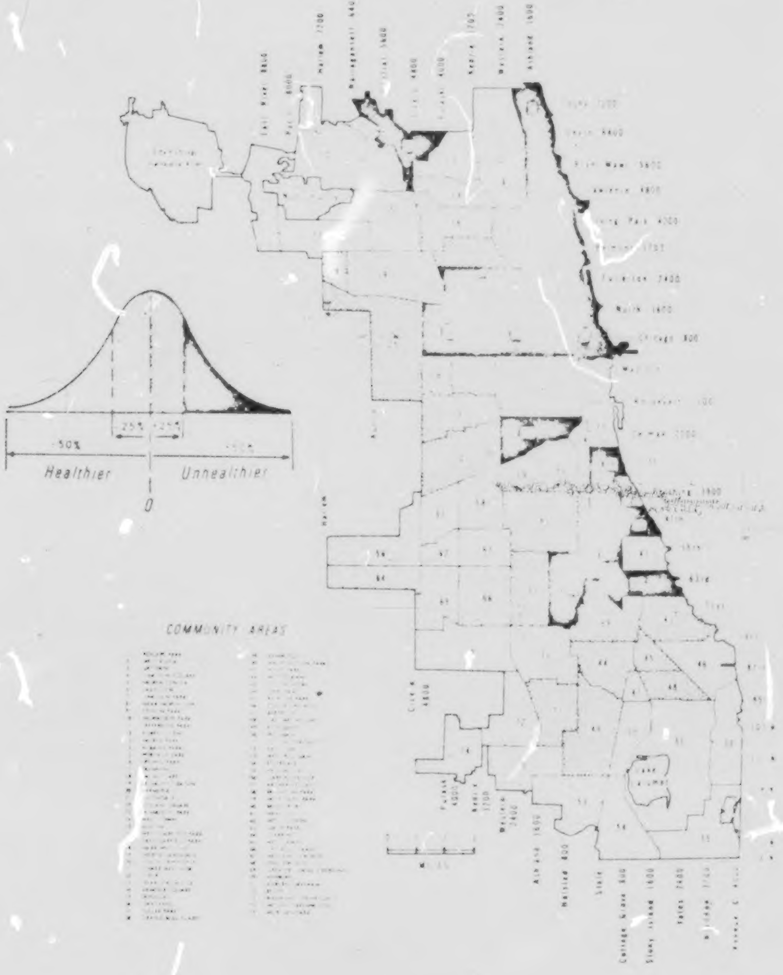


Healthier
Unhealthier
0
-50%
-25%
+25%
+50%
COMMUNITY AREAS
Madison
Roosevelt 1200
Pershing 3900
Harlem
Cicero 4800
Halsted 800
State
Ashland 1600
Western 2400

de Vise, P., et al., 1969, p. 11.

FIGURE 6.11

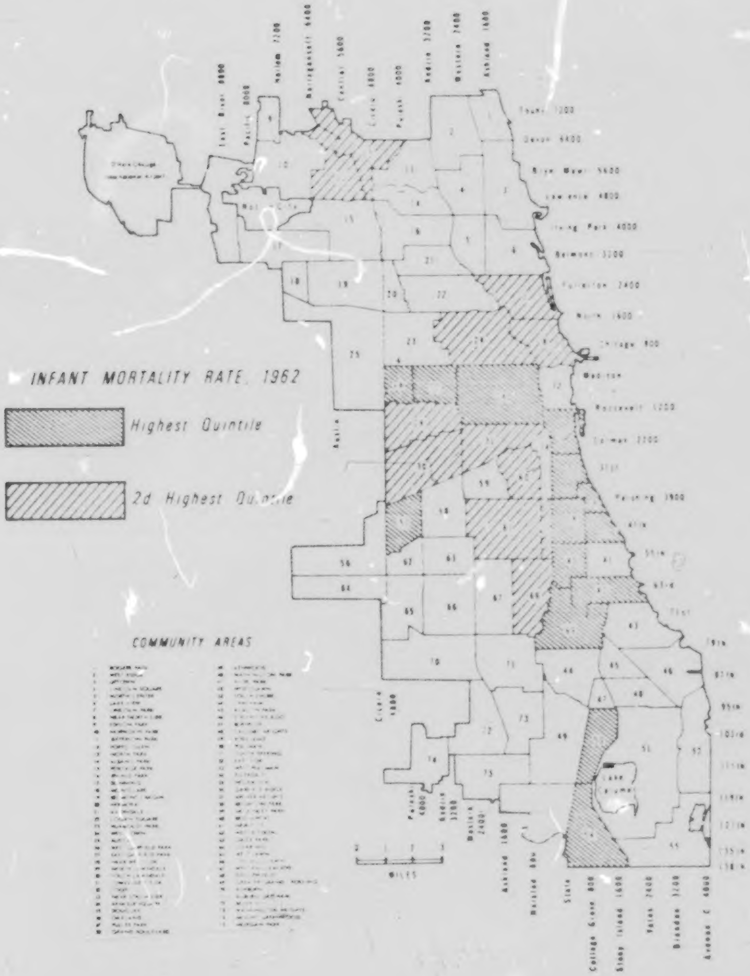
Factor II: The Density Syndrome


-50%
-25%
+25%
+50%
Healthier
Unhealthier
0
COMMUNITY AREAS

de Vise, P., et al., 1969, p. 12.

FIGURE 6.12

Infant Mortality Rates

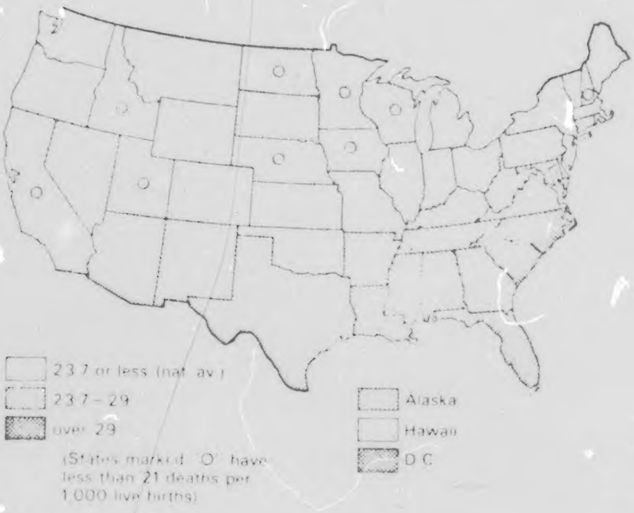

INFANT MORTALITY RATE, 1962
Highest Quintile
2d Highest Quintile
COMMUNITY AREAS

de Vise, P., et al., 1969, p. 7.

FIGURE 6.13

Infant Mortality Rates by State,
United States, 1966

(Deaths Under 1 Year per 1,000 Live Births)


23.7 or less (nat. av.)
23.7 – 29
over 29
(States marked "O" have less than 21 deaths per 1,000 live births)
Alaska
Hawaii
D.C.

Birch & Gussow, p. 19 (figure 2.4).

whites than it is for all non-whites as a group. Another study (Donnelly et al., 1964) showed that except for the complication of blood incompatibility there is a steady increase in birth complications moving downward from the upper white socioeconomic sector to the lower non-white socioeconomic sector.

Maternal age, parity, and spacing of pregnancies. One set of factors which bears on pregnancy outcome is maternal age and parity, and the frequency of previous pregnancies. Two studies have shown the high risks of complication for the never-before-pregnant or the young too-often-pregnant mother, relatively lower risks for women in their 20's bearing the second, third, or fourth child, and increasing risks with increased age or parity for mothers over thirty and mothers bearing more than four children (Yerushalmy, 1938; Butler and Bonham, 1963). Figure 6.14 shows the excessive pregnancy risk and poor outcome for mothers at extreme age or parity. Youthful parturition appears to be more serious for the child than for the mother, as rates of infant loss are higher (Yerushalmy et al., 1940; Baird et al., 1954). Furthermore, in the United States, women under twenty have a higher percentage of low weight babies than any other group, toxemia and difficult labor are more frequent, and rates of perinatal loss are high (Aznar and Bennett, 1961; Marchetti and Menaker, 1950; Donnelly et al., 1961, 1964; Hassan and Falls, 1964). Lilienfeld and Pasamanick (1956) found that the combination of high parity and youthfulness is also associated with a high risk of mental deficiency in the child, with the highest risk mothers being under twenty at third parity.

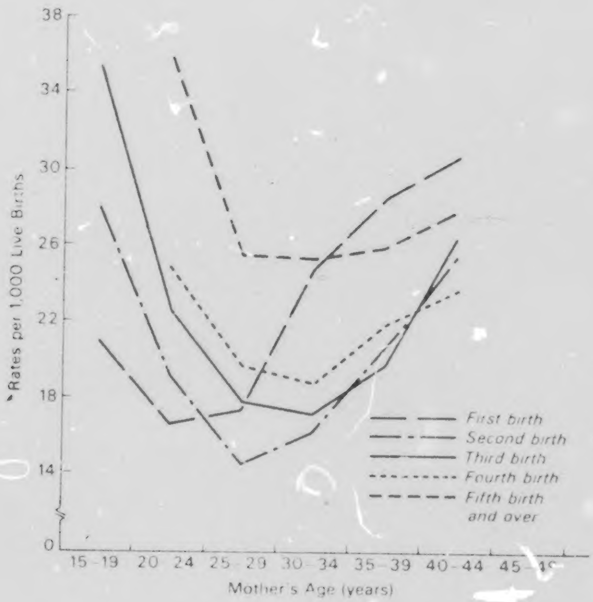
Low-income and non-white women are overrepresented in all categories of high risk pregnancies, except that of first pregnancies over the age of thirty (see figure 6.15). According to 1960 census figures, mothers 35-39 years old with family incomes less than $2000 a year had an average of 3.7 children, as compared with 2.5 children for families with annual income over $7000. 1963 statistics indicate that low-income families who had any children were 2-1/2 times as likely as high-income families to have six or more children. Nearly one out of three families with six or more children had an income of $3000 or less, and median family income declines as number of children rises (Population Reference Bureau, 1965). Since greater numbers of children imply more frequent pregnancies and higher parity, it is the lowest-income groups who are more likely to be at most risk in pregnancy. The Perinatal Mortality Survey data reveals that infant death rates increase after the third birth except in the highest socioeconomic class, where they increase only after the fourth birth (NCHS-PHS, 1000, 1965).

Similarly, non-white mothers are more likely to be at risk in pregnancy. Donnelly et al. (1964), in a study of 30,000 births, found that 56% of all non-white low-income mothers were under 20 or over 30 years of age (figure 6.16). Figure 6.17 shows that non-white women are younger than white for every birth order, and that with each succeeding birth there is increased discrepancy between the maternal ages of whites and non-whites, implying more frequent pregnancies for non-whites.

FIGURE 6.14

Neonatal Mortality Rates by Maternal Age
and Birth Order, United States, January-March 1950

NCHS, PHS 1000, 3-4, 1965



Birch & Gussow, p. 83 (figure 4.1).
Taken from National Center of Health
Statistics: Infant and perinatal
mortality in the U.S. Vital & Health
Statistics PHS #1000, Series 3H4,
Washington, D.C., U.S. Government
Printing Office, 1965.

FIGURE 6.15

Birth Rates by Maternal Age, Live Birth Order, and Color, United States, 1967[a]

Live Birth Order and Color	*Birth Rates by Age of Mother (years)*								
	15-44[b]	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49
Total	87.6	0.9	67.9	174.0	142.6	79.3	38.5	10.6	0.7
First child	30.8	0.8	51.1	75.3	26.5	6.6	2.2	0.5	0.0
Second child	22.6	0.0	13.6	59.5	40.2	12.3	3.8	0.8	0.0
Third child	13.9	0.0	2.7	25.0	34.4	17.1	6.1	1.3	0.1
Fourth child	8.3	—	0.5	9.4	20.4	15.3	6.7	1.6	0.1
Fifth child	4.8	—	0.1	3.4	10.6	10.7	5.6	1.4	0.1
Sixth and seventh child	4.5	—	0.0	1.4	8.3	11.2	7.3	2.1	0.1
Eighth child and over	2.7	—	0.0	0.1	2.1	6.2	6.8	2.9	0.3
White	83.1	0.3	57.3	168.8	140.7	76.5	36.6	9.3	0.6
First child	29.7	0.3	45.3	76.6	27.4	6.7	2.2	0.5	0.0
Second child	22.1	0.0	10.3	59.2	41.9	12.5	3.8	0.8	0.0
Third child	13.5	0.0	1.5	22.7	35.1	17.7	6.3	1.3	0.1
Fourth child	7.9	—	0.2	7.4	19.8	15.6	6.9	1.6	0.1
Fifth child	4.3	—	0.0	2.1	9.3	10.4	5.6	1.4	0.1
Sixth and seventh child	3.7	—	0.0	0.7	5.9	9.7	6.8	2.0	0.1
Eighth child and over	1.8	—	0.0	0.1	1.0	3.9	4.9	2.2	0.2
Nonwhite	119.8	4.1	135.2	212.1	155.9	90.1	52.4	16.8	1.2
First child	38.4	4.0	88.2	65.6	20.2	6.0	2.0	0.5	0.0
Second child	25.9	0.2	34.1	61.7	28.1	10.7	3.7	0.8	0.1
Third child	16.8	0.0	[illegible]	41.2	27.8	12.8	4.9	1.3	0.1
Fourth child	11.5	—	2.3	23.9	24.8	13.2	5.4	1.2	0.1
Fifth child	8.1	—	0.4	12.1	20.1	12.6	5.5	1.3	0.1
Sixth and seventh child	10.1	—	0.0	7.0	25.2	21.4	10.7	3.1	0.1
Eighth child and over	9.0	—	0.0	0.7	9.7	22.3	20.0	8.7	0.7

[a] Based on a 20% to 50% sample of births. Rates are live births per 1,000 women in specified age and color groups, estimated as of July 1; live birth order refers to number of children born alive to mother. Figures for age of mother not stated and birth order not stated are distributed.

[b] Rates computed by relating total births, regardless of age of mother, to women aged 15-44 years.

NCHS, MVSR, Dec. 4, 1968

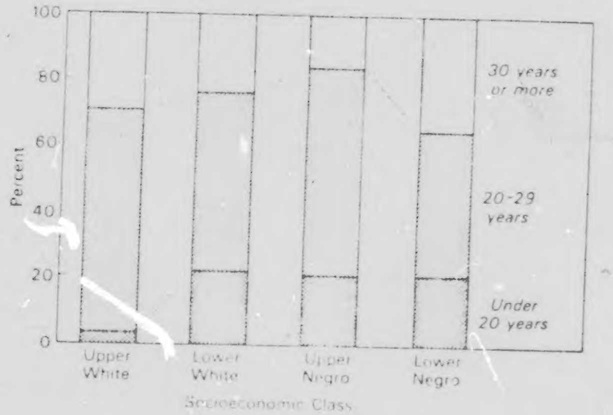
Birch & Gussow, p. 87 (table 4.1). Taken from National Center of Health Statistics: Advance report, final natality statistics, 1967. Monthly Vital Statistics Report 17: 9, Supplement 1-8, December 4, 1968.

FIGURE 6.16

Distribution of Single Live Births by Maternal Age and Socioeconomic Class, North Carolina, 1954-1961

(University hospital births)

Donnelly *et al.*, 1964



Birch & Gussow, p. 86 (figure 4.2). Taken from Donnelly, J., et al., Maternal, fetal and environmental factors in prematurity. American Journal of Obstetrics and Gynecology, 1964, 88, 918-931.

FIGURE 6.17

Median Maternal Age by Live Birth Order and Color,
United States, 1965

Live Birth Order

	Total	1st	2nd	3rd	4th	5th	6-7th
	Median Age of Mother (in years)						
White	25.9	22.2	24.4	27.3	29.2	31.0	32.7
Nonwhite	25.0	20.2	22.8	24.4	26.4	27.9	29.8

Birch & Gussow, p. 88 (table 4.2).
Taken from National Center of Health
Statistics, Vital Statistics of the
U.S., 1965, Washington, D.C., U.S.
Government Printing Office, 1967.

Figure 6.18 demonstrates that non-white women are more likely than white to have more than four children. Stine et al. (1964) found that over 20% of births to 16 year old non-white mothers in Baltimore were at least second pregnancies. The 1967 Vital Statistics (NCHS, 1968) show that births to 10-14 year old mothers are 14 times more common among non-whites.

Lunde (1965) studied education as a variable in birth patterns, and found that in contrast to the trend shown above, high school educated non-whites had about the same pattern of births as whites with high school education, and that with college education non-whites tended to have fewer children than their white peers. Campbell (1965, 1966) concluded that a Southern farm background was characteristic of non-whites with fertility in greatest excess of the national average. Thus poor women and non-white women bear more children at extremes of age, attain higher birth orders, and give birth more frequently.

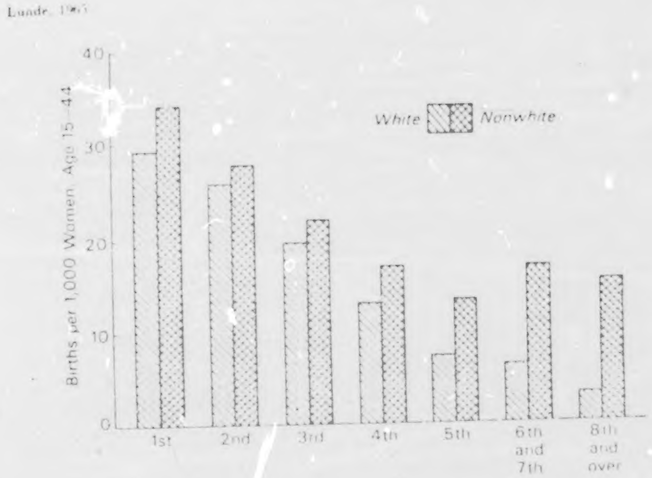
Overall maternal health status and physical history. Another factor in reproductive performance is maternal health status insofar as this can be estimated. Height has been used as an index of the impact of environment on physical health, as studies have shown that shortness of stature is associated with various abnormal patterns of growth and development also associated with poverty. Jackson (1964) and Bakwin and McLaughlin (1964) support this assumption of a relationship between social condition and height. Birch and Gussow (1970) offer evidence that the effect of environment on stature is great, showing that the offspring of like genetic groups differed greatly in height according to the environments in which they grew to maturity. Illsley (1956) found that lower-class women in Aberdeen, Scotland, were shorter and heavier than upper-class women and that height increased with social class (see figure 6.19). Figure 6.20 indicates the significance of this evidence for reproductive outcomes: prematurity and perinatal mortality rates increase within each social class as height decreases, and the rates increase within each height group as social class declines.

There is very little data from the United States on the connection between height (as an estimation of overall health) and reproductive risk. Yerushalmy (1967) found that 6.7% of short mothers, 5.1% of medium height mothers, and 3.5% of tall mothers bore low birth weight infants. In a sample of births in North Carolina University Hospital, Donnelly (1964) found a differential distribution of height by social class and an association like that of Illsley between maternal size and prematurity in every social class. Thus, whatever height represents, short stature appears to be associated with birth complications and risk to the infant.

Maternal diet and nutritional status. Many studies have investigated the effect of maternal diet on pregnancy outcome. Pre-World War II and wartime data supported the notion that the quality and quantity of maternal

FIGURE 6.18

Birth Order by Color, United States, 1963

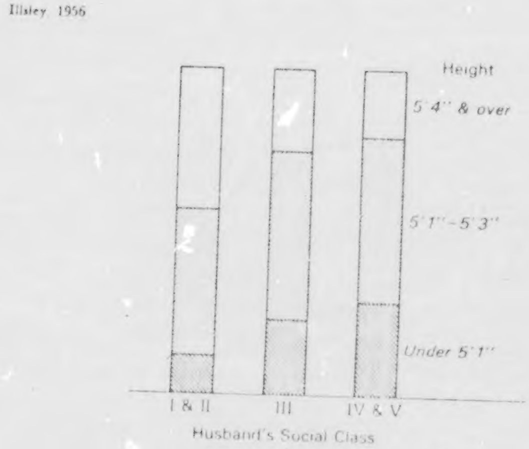


Birch & Gussow, p. 89 (figure 4.3).
Taken from Lunde, A.S., White-nonwhite fertility differentials in the U.S. HEW Indicators, 1965.

FIGURE 6.19

Distribution of Women's Height by Social Class
Aberdeen, 1950-1953

(Married city primiparae)



Birch & Gussow, p. 106 (figure 5.3). Taken from Illsley, R., "The social context of childbirth". Nursing Mirror, September 14 & 21, 1956.

FIGURE 6.20

Perinatal Mortality and Prematurity Rates by Height and Social Class, Aberdeen, 1948-1957

(Primigravidae)

Height		I,II	III	IV,V	All Classes
Tall (64 inches and over)	Perinatal mortality	14.5	25.5	35.0	24.6
	Prematurity	(3.8)	(4.8)	(6.7)	(4.9)
Medium (63 inches to 61 inches)	Perinatal mortality	22.2	33.4	36.8	32.8
	Prematurity	(5.6)	(7.3)	(9.7)	(7.7)
Short (61 inches)	Perinatal mortality	35.5	36.5	55.0	42.1
	Prematurity	(8.6)	(11.3)	(14.3)	(12.1)

Birch & Gussow, p. 119 (table 5.3). Taken from Baird, D., The epidemiology of prematurity. Journal of Pediatrics, 1964, 65, 909-924.

diet during pregnancy had a significant effect on reproductive outcome. Replications of these studies carried out after the war have shown inconclusive or conflicting results. Tompkins et al. (1955) found that low preconceptual weight predisposed the mother to premature birth regardless of pregnancy weight gain, and that low weight gain during pregnancy was an added risk. Several studies have shown that nutritional status can be affected by disease (Birch and Cravioto, 1968), extremes of temperature (Mills, 1945, 1949), and excessive expenditures of energy and psychological stress (Macy, 1942; Scrimshaw, 1950; Widdowson, 1951). Stature, as a record of long-term health status, also reflects nutritional status as a part of environment, and it seems reasonable to conclude that it is long-term nutritional status that has the greatest impact on reproductive outcome.

There is little human evidence investigating the impacts among poor women of nutritional status on pregnancy outcome; that is, samples have not been drawn up in such a way as to produce such evidence. There are some animal data, and some cross-cultural and ethnic material relating to family dietary habits. Animal studies have supported the proposition that maternal nutritional deficiencies could damage the fetus and yet not prevent reproduction altogether, but as Birch and Gussow (1970) report, the kinds of gross deformities seen as a result of nutritional deprivation in animals are rarely seen in live human births.

Comparative studies of the pregnancy diets of whites and non-whites have also been done. If pregnancy diet is assumed to be similar to long-term dietary habits, these studies may be relevant to an understanding of general nutritional status. Of added significance is the evidence of the persistence of traditional dietary habits, sometimes founded on cultural beliefs, as for example the notion among some non-whites that eating clay or starch is healthful, particularly during pregnancy (Ferguson and Keaton, 1950; Edwards et al., 1959; Payton et al., 1960; New York Times, July 24, 1967; Keith et al., 1968). (The ingestion of clay and starch has been identified as a factor in the development of iron deficiency anemia.)

The dietary studies show evidence that the diets of non-white mothers are poorer in quality and quantity than those of whites. Moore et al. (1947) showed an average caloric intake of 1,546 calories per day for non-whites, 2,041 for whites. Forty-nine per cent of non-whites had diets rated poor or very poor, and 36% met none of the dietary recommendations of the Food and Nutrition Board of the National Research Council. Another study showed that 24% of non-whites examined in the prenatal clinics of a New Orleans hospital as compared with 14% of whites, had protein intakes below the recommended amounts (Arnell et al., 1945). In a later study in the same clinics, Hinson and Ferguson (1951) showed that 92% of non-whites, compared with 74% of whites, had poor or very poor diets; in a subsequent study (Ferguson and Hinson, 1953) they found that the protein intake had not improved over the decade. Although these studies were done during pregnancy, it would seem likely that the extreme findings cannot be fully explained away by a possible nutritional intake decline during pregnancy. Furthermore, there is some evidence that the situation is as bad as it was over 25 years ago.

Prenatal care. Though access and utilization of medical care will be discussed more fully below, it is useful to sketch out here just who the disadvantaged are in relation to use of prenatal care. According to Illsley (1967):

> ...on purely obstetric grounds certain groups of the population should receive the highest available levels of maternity care. There are primigravidae, ...grand multiparae, women with a poor obstetric history, young mothers with rapidly recurring pregnancies, women of short stature and poor physique and health, mothers having illegitimate pregnancies, and the socially underpriviledged... (Birch and Gussow, p. 156)

It appears that it is precisely these women who are least likely to get sustained care of good quality. Several studies show that poor mothers are more likely to have inadequate prenatal care or none at all (Lesser, 1964; Hartman and Sayles, 1965). The Children's Bureau (Lesser, 1964) estimated that the proportion of pregnant women in lower socioeconomic groups receiving prenatal care has been declining by 2% each year. Other studies show that non-whites are also less likely than whites to have prenatal care (Buetow, 1961; Baumgartner, 1965; Pakter et al., 1961). Figure 6.21 illustrates the tendency for non-whites and Puerto Ricans in New York City to receive less prenatal care than whites.

The Risk to the Infant Associated with Reproductive Complications

The significance of the discussion of maternal condition and risk of complications lies in their association with risk of damage to the fetus. In this section we will discuss specific risks of impairment of infants born with reproductive complications. Prematurity (as measured by birth weight under 2500 grams) will be used as an index of birth complications. In the following section we will take up the cumulative effects of environment on infants born prematurely.

Low birth weight infants are at much greater risk than full-term infants of severe neurological, mental, sensory, and other defects. Pasamanick and Knobloch (1960), noting the association between pregnancy complications and fetal/neonatal deaths due to brain injury, hypothesized that among the survivors

> ...there must remain a fraction so injured who do not die, but depending on the degree and location of trauma, go on to develop a series of disorders extending from cerebral palsy, epilepsy and mental deficiency through all types of behavioral and learning disabilities resulting from lesser degrees of damage... (Birch and Gussow, pp. 48-49)

FIGURE 6.21

Obstetric Care in Different Ethnic Groups

	White		Puerto Rican		Nonwhite	
	Married	Unmarried	Married	Unmarried	Married	Unmarried
Private services	85.8	17.3	--	--	--	--
Ward services	12.2	81.0	90.4	97.5	82.1	97.4
Prenatal care in first six months	87.2	36.7	60.4	43.5	61.7	42.9

Birch & Gussow, p. 159 (table 7.1).
Birch's adaptation from Pakter, J., et al., Out-of-wedlock births in New York City: I. Sociological aspects. II. Medical aspects. American Journal of Public Health, 1961, 51, 683-690.

Such disabilities might include disorders of cognition and perception, heightened impulsivity or distractability, delayed mastering of bodily functions. Studies show evidence of higher incidence of visual and auditory defects among prematures. A Baltimore sample showed that 3.6% of prematures had impaired hearing as compared with less than 1% of full-term infants (Harper and Wiener, 1965). Several studies (Goldstein et al., 1967; Drillien, 1956) showed strabismus to be more common among low birth weight infants, especially among those at the lowest end of the low birth weight scale. Drillien (1965) also found that of 72 children at birth weights of 3 pounds or less, 75% had some congenital defect or mental retardation when tested at school-entering age. Other studies show considerable rates of neurological or opthalmic defects among prematures (Lubchenco et al., 1963; McDonald, 1962). A study comparing low birth weight children with full-term children on a number of psychological tests (WISC test, Bender-Gestalt, and Wide Range Achievement test) showed that prematures were impaired on a wide variety of psychological measures. Impairment was greatest for children of the lowest birth weights and appeared to be connected with neurological defect (Wiener et al., 1968). Other evidence shows that prematures have somewhat lower mean IQ's than economically comparable groups of children born at term (Birch and Gussow, 1970, p. 55). According to Wiener (1962), of 18 studies done since 1940, only one failed to find prematures lower in IQ.

Figure 6.22 reveals the reduced school performance levels of prematures. There is also evidence to suggest that prematures tend to have more personality disturbances and behavior problems than do full-term infants. Drillien (1964) found that prematures had more difficulty adjusting to school routine than did full-term children of equal intelligence from similar homes, and that the lower the birth weight the higher the proportion of children judged maladjusted by teachers. He also found that of very low birth weight children (3 pounds or less), over 1/3 were uneducable in normal schools because of physical or mental handicaps, and over 1/3 required special treatment though attending normal schools.

Figure 6.23 shows that low birth weight rates are higher for non-whites. Statistics from New York City and Baltimore show percentages of 20% and 25% respectively of all non-white births of gestational age 36 weeks or less. This compares with a rate of about 10% for whites in New York (NCHS, 1964). Furthermore, while white rates of prematurity have remained about constant between 1951 and 1967, there has been an increase in non-white rates in the same period (see figure 6.24). The median non-white birth weight has been consistently lower than the white (see figure 6.25); furthermore, the median non-white birth weight has shown a decrease of 120 grams while the white rate has remained constant.

The relation of socioeconomic status to birth weight is like that of socioeconomic status to infant mortality. Rider et al. (1955), in a study done in Baltimore, showed that prematurity increased from 5% in the highest income decile to 7.6% in the lowest among whites, but even the poorest whites had a lower rate than the non-white population as a whole (see figure 6.26). Crump et al. (1957, 1961) showed a range within the non-white

FIGURE 6.22

Scores on Mental Development Tests at Various Ages by Birth Weight

	Pounds	Grams	Pounds	Pounds	Grams	Pounds	Grams	Pounds	Pounds
	3 or less	>1500	>3-3-1/2	3-1/2 or less	1501-1999	>3-1/2-4-1/2	2000-2500	>4-1/2-5-1/2	>5-1/2
Drillien									
4 years, DQ				80.2		96.8		99.2	
Baltimore									
6-7 years, SB		88.9			90.6		93.0		95.6
8-10 years, WISC		84.7			88.5		90.8		94.7
McDonald									
6-9 years, SB	98.5		103.0			103.8			

Birch & Gussow, pp. 58-59 (table 3.2).

FIGURE 6.23

Distribution of Live Births by Birth Weight and Color, United States, 1965 (3,760,358 live births)

Birth Weight (grams)	All Births	White	Nonwhite
1,000 or less	0.6%	0.5%	1.1%
1,001-1,500	0.7	0.6	1.2
1,501-2,000	1.6	1.3	2.7
2,001-2,500	5.5	4.8	8.8
2,500-3,000	19.6	18.3	26.2
3,000-3,500	38.3	38.5	37.3
3,500-4,000	25.6	27.1	17.8
4,001-4,500	6.8	7.4	3.9
4,500-5,000	1.2	1.3	0.9
5,001 or more	0.2	0.2	0.1
	100.0%	100.0%	100.0%

Percentage under 2,500 grams	8.3	7.2	13.8
Median weight (grams)	3,290	3,320	3,130
Number of live births	3,760,358	3,123,860	636,498

Number of nonwhite births under 2,500 grams, 87,836

Birch & Gussow, p. 70 (table 3.5). Taken from National Center of Health Statistics, Vital statistics of the U.S., 1965, Washington, D.C., U.S. Government Printing Office, 1967.

FIGURE 6.24

Births Under 2,500 Grams by Color, United States,
Selected Years 1951-1967 (percentage of total births)

	White and Nonwhite	White	Nonwhite
1967	8.2%	7.1%	13.6%
1965	8.3	7.2	13.8
1961	7.8	6.9	13.0
1959	7.7	6.8	12.9
1957	7.6	6.8	12.5
1955	7.7	6.9	11.8
1953	7.7	7.1	11.4
1951	7.6	7.1	10.8

Birch & Gussow, p. 72 (table 3.6). Adapted from: 1) National Center of Health Statistics, *Natality Statistics Analysis, U.S., 1962*, Vital & Health Statistics, PHS Publication #1000, Series 21, #1, PHS, Washington, D.C.: U.S. Government Printing Office, 1964; 2) NCHS, *Vital Statistics of the U.S., 1962*, Washington, D.C.: U.S. Government Printing Office, 1967; 3) NCHS, *Advance Report. Final natality statistics, 1967*, Monthly Vital Statistics Report 17:9, Supplement 1-8, December 4, 1968.

FIGURE 6.25

Median Birth Weight by Color, United States,
Selected Years 1950-1967 (in grams)

Year	White	Nonwhite
1967	3,310	3,130
1965	3,320	3,130
1964	3,320	3,130
1962	3,320	3,140
1960	3,340	3,150
1957	3,330	3,170
1955	3,330	3,190
1950	3,320	3,250

Birch & Gussow, p. 73. Taken from: 1) NCHS, PHS 1000, 21:1, 1964; 2) NCHS, PHS 1000, 21:11, 1967; 3) NCHS, Vital Statistics of the U.S., 1965; 4) NCHS, MSVR, December 4, 1968.

FIGURE 6.26

Prematurity Rates by Socioeconomic Tenth,
Baltimore, 1950-1951

Socioeconomic Tenth	Number of Births	Number of Premature Births	Percent Births Premature (Observed)	Percent Births Premature (Adjusted)[a]
Total White	27,979	1,894	6.8	6.8
Highest	3,447	176	5.1	5.0
9	2,382	146	6.1	5.7
8	2,814	162	5,8	5,6
7	2,587	169	6.5	6.6
6	2,526	169	6.7	7.0
5	2,704	191	7.1	7.1
4	2,646	212	8.0	7.9
3	3,075	240	7.8	7.6
2	2,735	206	7.5	7.4
Lowest	3,063	223	7.3	7.6
Nonwhite	14,298	1,621	11.3	11.4

[a] Adjusted for birth order and age of mother

Birch & Gussow, p. 77 (table 3.9). Taken from Rider, R.V., et al., Associations between premature birth and socioeconomic status. American Journal of Public Health, 1955, 45, 1022-28.

population of 6.6% low birth weight infants among the highest socioeconomic group to 17% in the lowest (see figure 6.27). Figure 6.28 shows a similar relationship between socioeconomic status and mean birth weights among non-whites. In light of the possible long-term effects of poor nutrition and environmental conditions, it is not clear that there are genuine ethnic differences in prematurity rates. The rates may also be a function of low socioeconomic status over generations.

The Environmental Risks of Infancy and Childhood

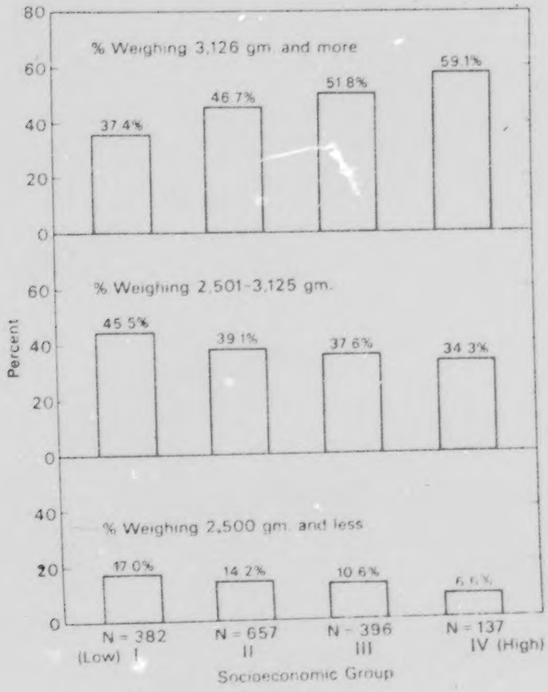
Beyond the risks of infant mortality and of damage associated with prematurity, there are further consequences for development in the environment of infancy and childhood. Although a hostile environment is especially pernicious for prematures, it may also impede the development of other children. Such factors as infant nutrition, exposure to disease, the social and psychological milieu (family, housing, residential community) will be discussed in this section. Other factors which bear on development, such as access to and use of health care facilities, will be discussed below.

The cumulative effects of environment on premature infants. Birch and Gussow (1970) suggest that circumstances that adversely affect all children are especially harmful to prematures, who require particularly fostering environments, and that between the time of birth and the time that IQ can be tested, a number of environmental factors may have already had their influence. Illsley's data (1966a) revealed that premature children of the lowest socioeconomic class were more likely to have depressed IQ's than those of the highest social class. The conclusions drawn from a Kauai, Hawaii, study of children born of various degrees of birth complications were that even severe complications could be compensated for by a good postnatal environment, but that for children from the poorest homes the cumulative effect of environmental hazards showed up in lower IQ levels (Werner, 1967). (See figure 6.29.) Drillien (1964) found that there was little actual impairment among children from the "best" homes, except for birth weights under 3-1/2 pounds, but that in lower socioeconomic groups lower birth weight correlated with increased handicapping. He concluded that in the birth weight range of 4-1/2 to 5-1/2 pounds, children from advantaged homes run by "competent" mothers were not seriously handicapped as compared with full-term infants from similar homes, but that children of the same weight range from poor homes were more likely to be handicapped than were full-term infants from similar homes.

Familial stress also seems to have a greater impact on prematures and infants born of perinatal stress, producing maladjustments at school age among less than 10% of full-term children, and among about half of those children born of complications (Drillien, 1964).

FIGURE 6.27

Distribution of Specific Birth Weight
Categories by Socioeconomic Group



Birch & Gussow, p. 75 (figure 3.5). Taken from Crump, E.P., et al., Growth and Development. I. Relation of birth weight in Negro infants to sex, maternal age, parity, prenatal care and socioeconomic status. Journal of Pediatrics, 1957, 51, 678-697.

FIGURE 6.28

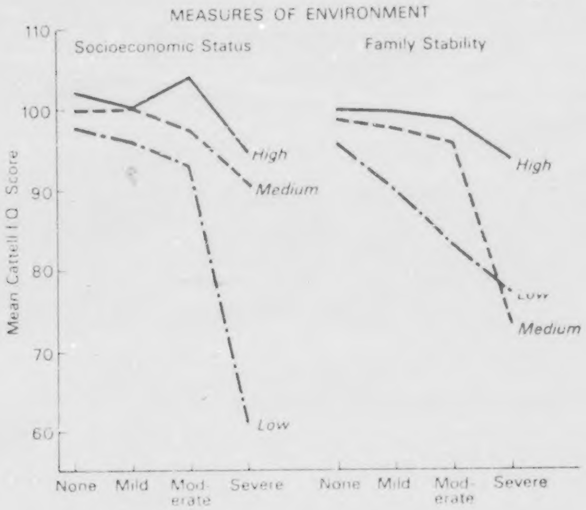
Relation of Birth Weight to Income,
Washington, D.C., 1939-1947 (11,818 Negro births)

Year	Average Male Birth weight (grams)	Standard Deviation	Average Female Birth Weight (grams)	Standard Deviation	District of Columbia Per Capita Income
1939	3,319	300	3,231	539	$1,031
1940	3,396	431	3,242	409	1,080
1941	3,196	372	3,223	227	1,079
1942	3,401	427	3,279	540	1,212
1943	3,279	286	3,273	499	1,296
1944	3,459	539	3,232	400	1,309
1945	3,428	404	3,337	413	1,376
1946	3,482	518	3,369	418	1,548
1947	3,469	295	3,396	427	1,632

Birch & Gussow, p. 76 (table 3.8). Taken from Scott, R.B., et al., Growth and Development of Negro Infants. I. Analysis of birth weights of 11,818 newly born infants. Pediatrics, 1950, 6, 425-431.

FIGURE 6.29

Mean Cattell IQ Scores at Age 2 by Severity of Perinatal Complications and Estimates of Two Environmental Measures, Kauai, Hawaii, 1955



Birch & Gussow, p. 62 (figure 3.3). Taken from Werner, E., Cumulative effect of perinatal complications and deprived environment on physical, intellectual and social development of preschool children. Pediatrics, 1967, 39, 450-505.

Since non-whites and the poor have a higher incidence of reproductive complications and higher rates of prematurity, poor and non-white infants are thus more likely to suffer handicaps of prematurity compounded by hostile environmental factors. In addition, environmental circumstances are hazards in and of themselves.

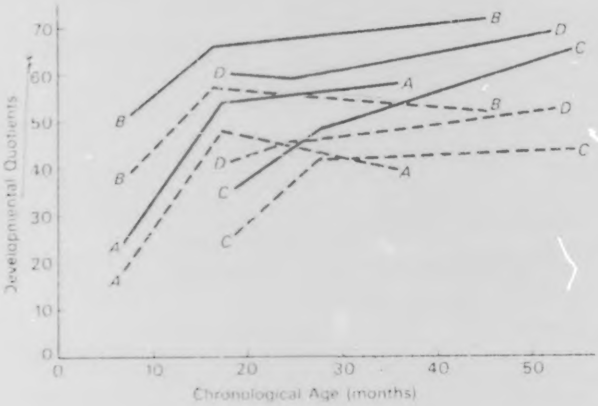
Malnutrition. Most investigations show that while there is evidence of a good deal of subnutrition and moderate malnutrition in the United States, severe malnutrition is not common. The permanent effects of moderate malnutrition are not altogether clear. Studies that show a high rate of permanent damage from malnutrition have used samples of children hospitalized for kwashiorkor or marasmus due to severe malnutrition, and it is not evident that children suffering from moderate malnutrition are at risk of such impairment. Further, as a recent review of the literature points out (Elias, 1971), studies do not usually identify the onset and duration of nutritional deprivation, so it is difficult to determine whether there is a critical period of insult early in infancy, as has been suggested by Dobbing (1968). Another problem with nutritional studies is that they do not study malnutrition independent of other environmental variables, so that it is possible that malnutrition is part of a syndrome of deprivation. Elias (1971) reviews evidence that there are major environmental differences between malnourished children and controls from the same social class, such as family disturbances and housing conditions. Further, it is possible that long-term hospitalization itself (for severe malnutrition) has a retarding effect.

Nonetheless, since there is evidence of a great deal of moderate malnutrition in this country (cited below), we will review some of the medical evidence on the association between malnutrition and permanent impairment. First, it appears that malnourished children are more susceptible to infectious diseases (Olarte et al., 1956; Kumate et al., 1964). They have higher rates of infection (Gordon et al., 1964), more frequent complications (Vega et al., 1964), and higher rates of mortality from diseases not normally fatal (Scrimshaw, 1965). Moreover, infections appear to depress an already poor nutritional status, interfering with vitamin synthesis and nitrogen balance (Birch and Gussow, 1970).

There is also evidence that malnutrition affects skeletal growth, and development of the central nervous system (Chandra, 1964; Coursin, 1965). Other studies show that malnutrition in early infancy is most critical in its impact on neurological development and may depress adaptive and intellectual development most severely (Eichenwald and Fry, 1969; Cravioto and Robles, 1965). (See figure 6.30.) Animal studies show that nutritional deprivation during the period of maximum brain growth affects the rate of development, neuromotor abilities and learning capabilities. In animals this impairment seems permanent, and when several generations are maintained on a poor diet, newborns may be handicapped even after a generation of refeeding (Birch and Gussow, 1970).

FIGURE 6.30

Evolution of Developmental Quotients for Height and Head Circumference During Recovery from Malnutrition



Birch & Gussow, p. 185 (figure 8.4). Taken from Graham, G.G., Growth during recovery from infantile malnutrition. Journal of American Medical Women's Association, 1966, 21, 737-742.

The incidence of malnutrition and subnutrition has been investigated through food budgeting and dietary records, records of nutritional deficiency diseases, and standard growth measures. In 1967, 256 counties in poor regions and in some urban areas were identified as hunger areas (Hunger, USA, 1968). Ten to fifteen million persons were estimated to live in families eligible for food supplement programs. In 1968 the Department of Agriculture (Dietary Levels of Households in the United States, 1968) estimated that while only 9% of families with incomes over $10,000 had "poor" diets, 36% of families with incomes under $3,000 had such "poor" diets (less than 2/3 recommended allowance of one or more essential nutrients). Sixty-three per cent of the upper-income group had "good" diets; only 37% of the lower group did. Heseltine and Pitts (1966) showed that in 1965 an estimated $102 per month would meet dietary needs for a family of a mother and three children, and that the AFDC median food cost standard for such a family was only $88 per month. A contrary finding by Shapiro et al. (1962) was that nutritional quality of the family diet was largely independent of family income and expenditures.

Iron deficiency anemia, one detectable effect of poor nutrition, is especially common among children in poverty areas and in the South. Hutcheson (1968), in a sample of children from rural Tennessee, found the highest level of anemia among one year olds, where 27% of whites and 40% of non-whites showed marginal hematocrits, and 10% of whites and 25% of non-whites had subnormal hematocrits. Data from 1966 summer Head Start projects in over 2000 communities showed that from 20-40% of the children had iron deficiency anemia, with rates of about 80% among Alabama preschoolers (Mermann, 1966) and among Mississippi preschoolers (Child Development Group of Mississippi, 1967). On the other hand, a survey of children from 28 California Head Start projects showed only 3.2% with subnormal hemoglobin concentrations (Gilbert et al., 1967). A sample of children from New York City health clinics found 19% to have subnormal hemoglobin concentrations (Houghton, 1963). Two other studies have found the highest rates of anemia (65% and 76%) among non-white, predominantly poor children occur sometime before the first year and a half of life (Gutelius, 1969; Andelman and Sered, 1966). Any age-related incidence variation of sickle-cell anemia in these populations was not controlled for.

Evidence of rickets and scurvy, vitamin A and protein deficiencies are also more common among poor and non-white children. The United States Public Health Service (1968) reported growth retardation in 35% of poor children under five; 4% under six had rickets; and 38% under nine showed evidence of scurvy. Studies of the diets of economically comparable whites and non-whites in North Carolina and Alabama showed non-whites to have more deficient diets (Bryan and Anderson, 1965; Cloud, 1967). Another study of 36 4-10 month old non-white infants from low-income families in South Carolina found signs of protein deficiency, vitamin C deficiency, and malnutrition in 1/3 of the group (Jones and Schendel, 1966). The National Nutritional Survey based on 1960 census data from families in the lowest income quartile found evidence of vitamin A and D deficiency, retarded growth and anemia in children aged 0-6 (Schaefer, 1969).

Evidence of retarded growth according to standard measures has also been found among low-income children. Owen and Kram (1969) found that in a sample of Mississippi preschool children, the poor were on the average smaller than the more affluent, and at greater nutritional risk. Among migrant children in upstate New York, 38% were in or below the third percentile for height, according to height norms for their ages (Richmond and Weinberger, 1970).

Infectious diseases. There is evidence to show that poor children are exposed to more infectious diseases, and that they are sick more often and more seriously than children from affluent families. Figures 6.31, 6.32, and 6.33 show the coincidence of areas with high rates of infectious diseases and areas of low socioeconomic status. Figures 6.34 and 6.35 indicate that non-white children under 14 have shown higher rates than have white children in all disease categories over the last 30 years. Figure 6.36 indicates that British children in lower socioeconomic groups have more infectious diseases.

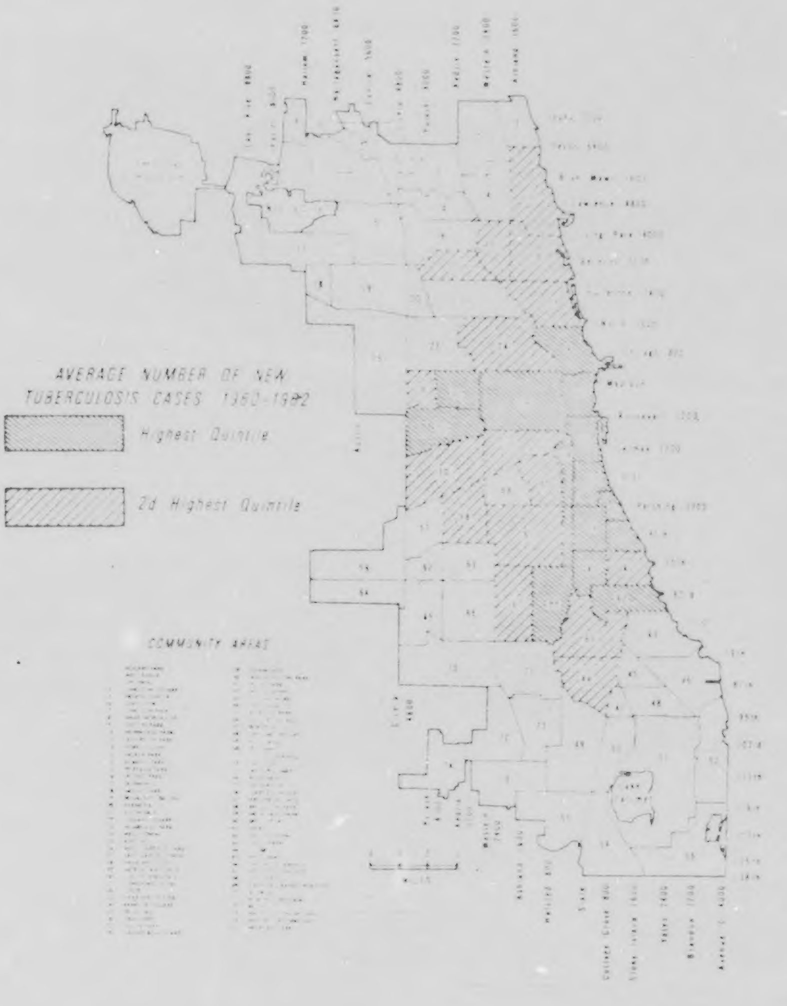
British studies have shown that poor children are sick more often and more seriously, and that preschool age children, particularly from large families and overcrowded households, are especially susceptible (Grundy and Lewis-Faning, 1957; Spence et al., 1954; Miller et al., 1960; Brimblecombe et al., 1958). The data from the United States are more difficult to interpret. There appears to be no correlation between family size and income, and rates of morbidity from chronic or acute illness among young people (though the poor over 15 do show more disabling chronic illnesses), and in fact rates of reported chronic and acute conditions for children under 15 rise with income (NCHS-PHS, 1964, 1967). A California health survey (Hornberger et al., 1960) corroborates this evidence.

However, other data on post-neonatal mortality, lengths of hospital stays, and immunization rates tempers this picture of the health risk of poor children. Non-white infants are more than twice as likely to die in the post-neonatal period as are whites, and it is in this period that most deaths are a result of infectious diseases and accidents (Birch and Gussow, 1970, p. 245). American Indians and Alaskan natives have nearly three times the average post-neonatal mortality rate, although their rates of death during the early neonatal period (during hospitalization at birth) are somewhat lower than average (American Academy of Pediatrics, 1971). These figures suggest that non-whites are at special environmental risk in early infancy.

Further, poor children are less likely to be immunized against serious infectious diseases. Several studies show that more than 50% of children of low socioeconomic status may have inadequate immunizations (Walton, 1964; North, 1967). Siegal (1966), in a study of migrant workers, found that none of the children had complete immunizations. Figures 6.37, 6.38, and 6.39 show evidence from other studies that poor children have inadequate immunizations.

FIGURE 6.31

Areas With High Tuberculosis Incidence

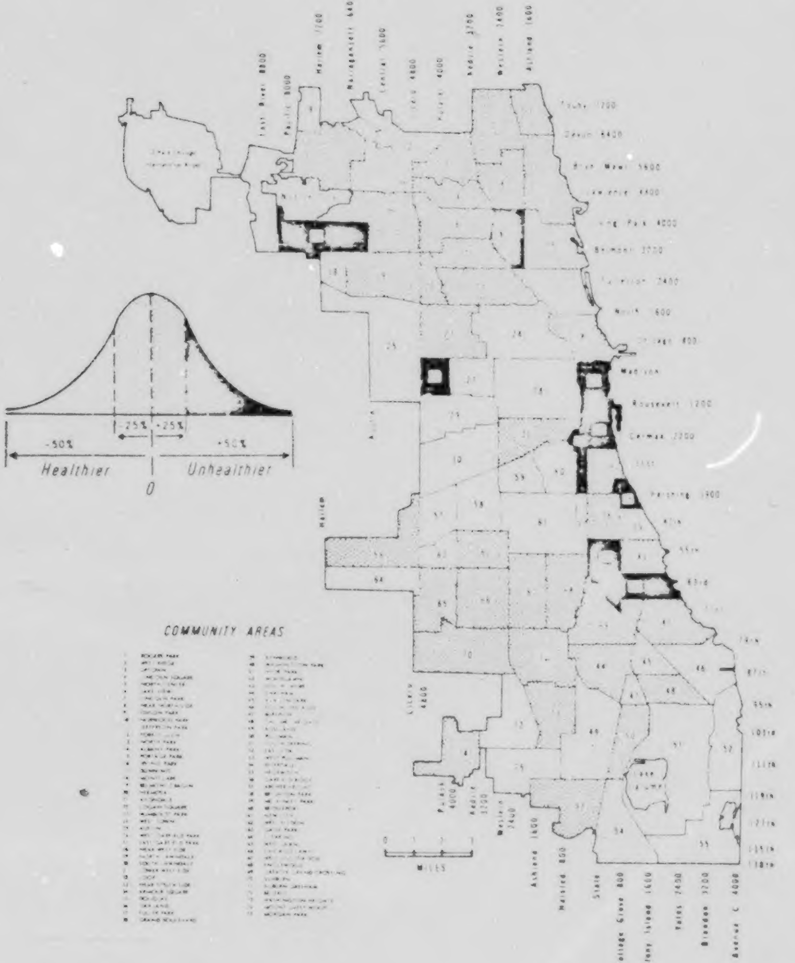

AVERAGE NUMBER OF NEW TUBERCULOSIS CASES 1960-1962
Highest Quintile
2d Highest Quintile
COMMUNITY AREAS

BEST COPY AVAILABLE

de Vise, P., et al., 1969, p. 5.

FIGURE 6.32

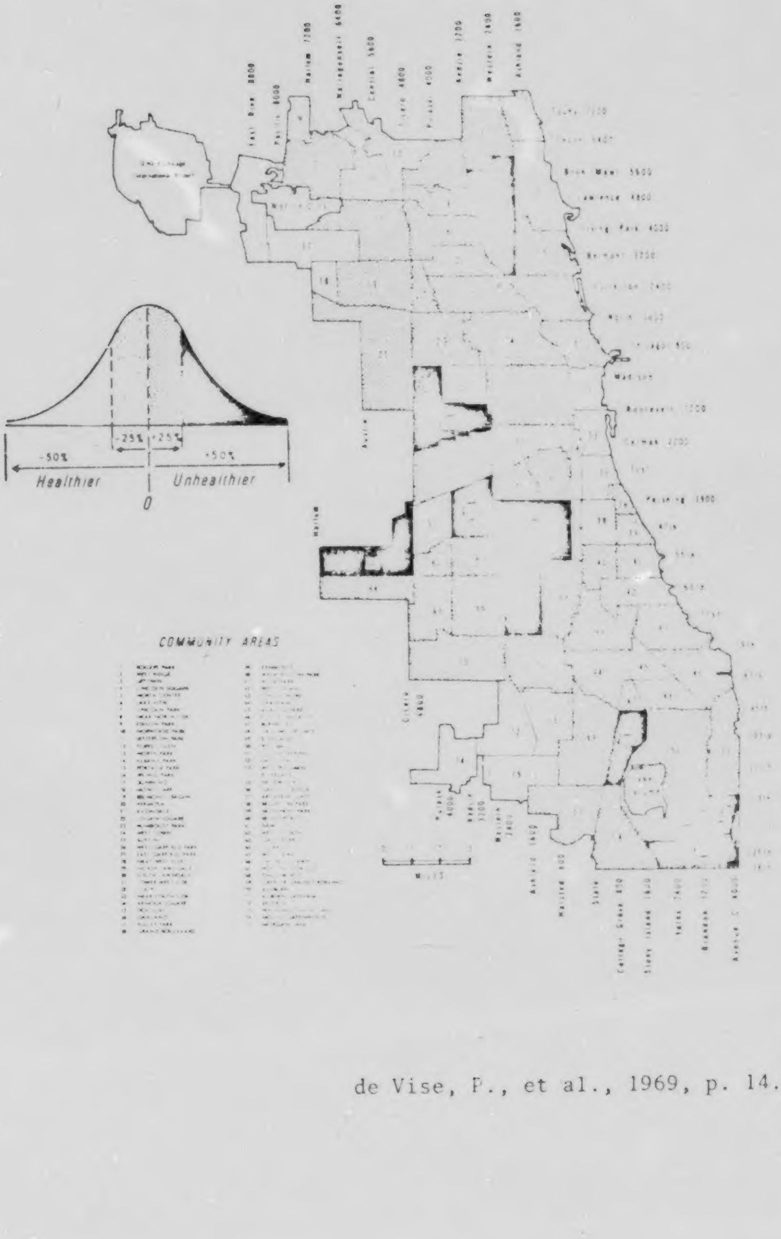
Factor III: The Upper Respiratory Syndrome


-25%
-25%
-50%
+50%
Healthier
0
Unhealthier
COMMUNITY AREAS
Madison
Roosevelt 1200
Cermak 2200
Pershing 3900
Ashland 1600
Halsted 800
State
College Grove 800
Stony Island 1600
Yates 2400
Brandon 3200
Avenue C 4000
MILES

de Vise, P., et al., 1969, p. 13.

FIGURE 6.33

Factor IV: The Rubella Syndrome


-25%
+25%
-50%
+50%
Healthier
Unhealthier
0
COMMUNITY AREAS
Madison
Roosevelt 1200
Cermak 2200
Pershing 3900
Harlem
Cicero 4800
Ashland 1600
Halsted 800
State
Cottage Grove 800
Stony Island 1600
Yates 2400
Brandon 3200
Avenue O 4000
Harlem 7200
Narragansett 6400
Central 5600
Cicero 4800
Pulaski 4000
Kedzie 3200
Western 2400
Ashland 1600
Pacific 8000
Bryn Mawr 5600
Lawrence 4800
Irving Park 4000
Belmont 3200
Fullerton 2400
North 1600
Chicago 800

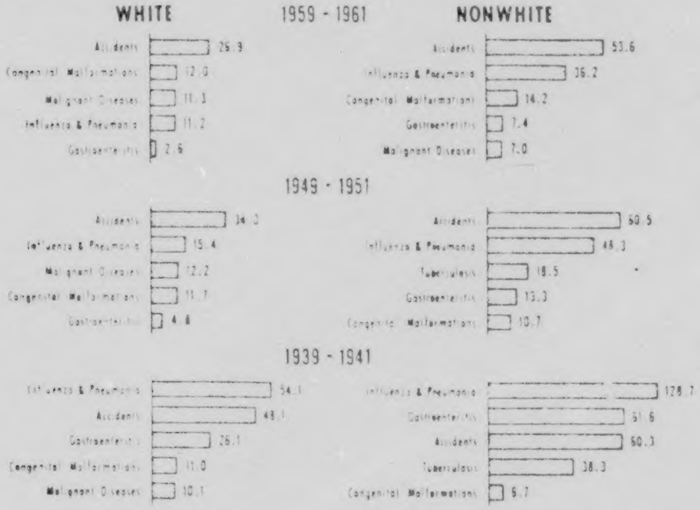
de Vise, P., et al., 1969, p. 14.

FIGURE 6.34

Five Leading Causes of Death at Ages 1-4 Years by Color

HEALTH SERVICES FOR CHILDREN AND YOUTH

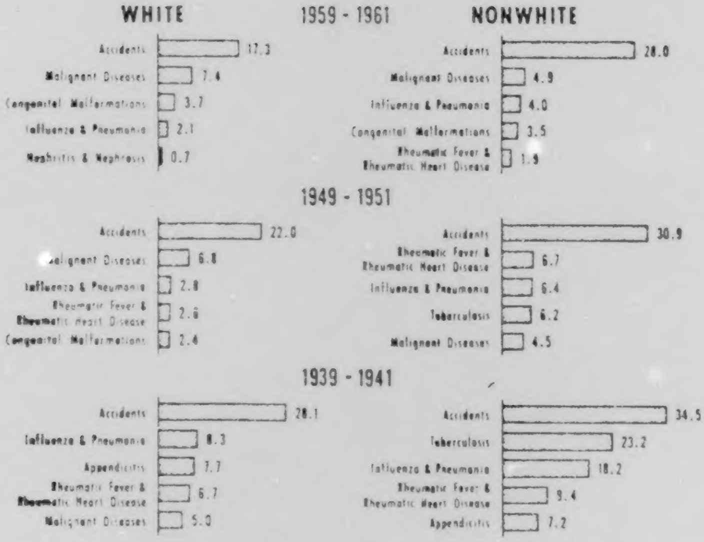
Figure 9—Five leading causes of death at ages 1-4 years by color



American Journal of Public Health,
Vol. 60, p. 31 (figure 9).

FIGURE 6.35

Five Leading Causes of Death at Ages 5-14 Years by Color



Taken from American Journal of
Public Health, Vol. 60(No. 4),
April 1970, p. 31.

FIGURE 6.36

Distribution of Respiratory Disease by Social Class

	Social Class					
Attacks	I	II	III	IV	V,N.C.	Total Children
0	0	3	18	4	9	34
1	2	7	31	9	22	71
2	3	14	77	20	26	140
3	4	10	70	21	28	133
4	2	6	57	16	22	103
5	1	11	73	15	20	120
6	2	7	31	11	18	69
7	0	5	36	8	20	69
8	0	4	20	5	6	35
9	1	2	16	4	6	29
10	0	0	6	1	1	8
11	0	0	8	3	4	15
12	0	0	2	2	2	6
13	0	0	3	1	1	5
14	0	0	0	1	3	4
15	0	0	1	0	1	2
16	0	0	2	0	0	2
18	0	0	1	0	1	2
Children at risk	15	69	452	121	190	847
Total attacks	54	271	2,006	543	862	3,736
Mean	3.6	3.9	4.4	4.5	4.2	-

$\chi^2 = 6.6$ $n = 4$ $P = 0.2-0.1$

Birch & Gussow, p. 238 (table 10.1).
Taken from Miller, E.J.W., et al.,
Growing up in Newcastle-upon-Tyne,
The Nuffield Foundation, Oxford
University Press, 1960.

FIGURE 6.37

Full Immunization of Children One to Four Years of Age According to Family Income and Type of Immunization (New York, 1964)*

Family Income	Percentage Fully Immunized		
	Diphtheria Pertussin & Tetanus	Poliomyelitis	Small Pox
$0 -1,999	50.7	23.9	44.8
$2,000-3,999	64.5	40.1	69.1
$4,000-5,999	77.7	55.4	85.1
$6,000-7,999	82.5	63.1	87.8
$8,000-or more	90.6	66.0	92.6

* Adapted from: Immunization status of New York City population under 10 years of age, 1964 (New York City Department of Health).

Bergner, L., & Yerby, A.S., Low income and barriers to use of health services. *New England Journal of Medicine*, 1968, *278*, 542.

FIGURE 6.38

Immunization Status of Children Age 1 to 5
Monroe County, New York, 1967

Status	Rochester City Non-Caucasian (%)	Rochester City Caucasian (%)	Suburbs (%)	Total (%)
DPT				
Immunized	87	94	85	88
Not Immunized	13	6	15	12
Polio				
Immunized	76	94	84	87
Not Immunized	24	6	16	13
Smallpox				
Immunized	74	83	81	81
Not Immunized	26	17	19	19
Measles				
Immunized	45	72	67	67
Not Immunized	55	28	33	33

Haggerty, R.J., Research issues in child health. II. Some medical and economic issues. Pediatrics, 1970, 45, 702-712 (p. 708).

FIGURE 6.39

Immunization Status According to Education of Mother and Family Income (per cent distribution)

Immunization Status	All Children	Education: Less Than 12 Years	Education: 12 Years or More	Income: Under $5,000	Income: $5,000 and Over
No Vaccination	40	50	33	50	29
No DPT Shots	24	37	17	35	13

Hornberger, R.C., et al. Health Supervision of Young Children in California. State of California, Department of Health, 1960

Taken from American Journal of Public Health, Vol. 60(No. 4), April 1970, p. 84.

The Appalachian Regional Commission Health Advisory Report (1966) showed 50% of children in Martin County, Kentucky had worm infestations; 70% of South Carolina coast families had one or more varieties of worms. Of children 0-5, 82% had ascaris infestations and 43% had trichuris.

Statistics on hospitalization admissions and lengths of stay are somewhat conflicting but suggest a more serious pattern of illness among poor children. Douglas and Blomfeld (1958), using a British national sample representative according to social class, found that illnesses requiring hospitalization in the first nine months were more common among poor children, that admission rates were four times as high among children of unskilled manual workers as compared with professionals, and that poor children had longer hospital stays and were more likely to be readmitted within a year. The United States National Health Survey (NCHS, 1964) reports that poor and non-white children are less likely to be admitted to hospitals than white and non-poor children, but that once admitted, they stay longer. The discrepancies may be due partly to the non-comparable age ranges of the samples (the NHS begins at age one) and partly to the influence of a national health service upon utilization rates.

Finally, studies have implicated such environmental conditions as poor housing (multiple use of toilet and water facilities, inadequate heating and ventilation and crowded sleeping arrangements) in the spread of infectious diseases (Richmond and Weinberger, 1970). Minor digestive diseases and enteritis have been shown to be related to poor cold food storage facilities, washing and toilet facilities (Carey, 1970).

The social-psychological environment -- family, housing and residential community. Besides the risks of malnutrition and infectious diseases, there are further risks to the child in his physical and psychological environment. Since it is so often the same groups in the population most at risk of deprivation, impairment, or disease, these further environmental risks will often be cumulative factors in the health risks of the disadvantaged. However, such dangers as child abuse or neglect are not necessarily specific to certain living conditions or confined by income or race.

The condition of "failure to thrive" is characterized by mental and physical growth retardation and by signs of severe malnutrition. It has not been found to be an organic pathology and is believed to be caused by parental neglect or maternal deprivation, which have in turn been associated with an unstable family situation: severe marital strife, erratic living habits, unstable family economy due to employment problems. Elias (1971) reviews an hypothesis about the circular effects of malnutrition and infant apathy that might have some bearing on maternal deprivation and neglect: the notion is that a malnourished infant is also apathetic and thus demands less of the mother and in turn receives less attention, less stimulation and less food, so becoming more apathetic and malnourished.

Studies differ on whether "failure to thrive" had permanent effects on the infant's development. One report suggests that such children may not resume a normal growth pattern or show normal social behavior and intellectual functioning even after environmental conditions are corrected (Patton and Gardner, 1962). A follow-up study of neglected children admitted to Children's Hospital in Boston showed marked improvement in one-third of the cases, and concluded that the syndrome might be reversible (Bullard et al., 1966).

Battering or child abuse has been related to stressful and disorganized family life. The incidence of child abuse is disputed; it may often go unrecognized by doctors, and it may not be reported when recognized. Several studies report child abuse at rates of about 10-20% of accident cases seen by doctors (Holter and Friedman, 1968; Gregg and Elmer, 1969). It is possible that many other cases are not seen by doctors. Permanent damage from abuse (intellectual, emotional, social and motor development retardation) was judged to occur in about 70% of cases in a follow-up study of 25 children done by Morse et al. (1970). Elmer (1967) found that about 90% suffered a residual damage, and Wight (1969) concluded that some retardation was characteristic of these children.

Another category of health risk directly related to the physical environment is that of injuries and accidents: poisoning, burns, suffocation, falls, moving vehicle injuries. Figures 6.40 and 6.41 show the causes of death by accident to children. About 15,000 children suffer accidental deaths every year; serious injuries sustained from accidents occur about 100-150 times more often than death (McFarland and Moore, 1971). Accidental death is the sixth leading cause of death even among infants under age one. Figure 6.42 illustrates the number of accidental injuries requiring restricted activity or medical attention; in 1967, the National Center for Health Statistics found nearly nine million children under six (38%) were so injured. Figure 6.43 shows similar evidence from a California study of accidental injury (Manheimer et al., 1966).

Up to the age of four, the child is most likely to suffer from accidents in the home; child pedestrian accidents are also a risk for children above the age of three (McFarland and Moore, 1971). Huelke and Davis (1969) show that accidents to school age child pedestrians are most likely to occur at the times of travel to and from school.

There is a lack of evidence relating socioeconomic status to types and rates of accidents. Several studies have related frequency of accidents to the social environment of the child. The notion of a "vulnerable family" characterized by maternal illness, preoccupation with other children, pregnancy or work outside the home, a higher than average number of dependents, and lack of supervised, protected play area, has been developed by Backett and Johnston (1959). Meyer et al. (1963) arrived at similar conclusions. Read (1969), studying a Vancouver population, found mothers of children with frequent accidents tended to be young and to work outside the home, fathers tended to be unskilled workers, and families tended to live in multiple-dwelling housing in densely populated areas.

FIGURE 6.40

Fatalities from Leading Types of Accidents
in the U.S., Classified by Age and Sex, 1967

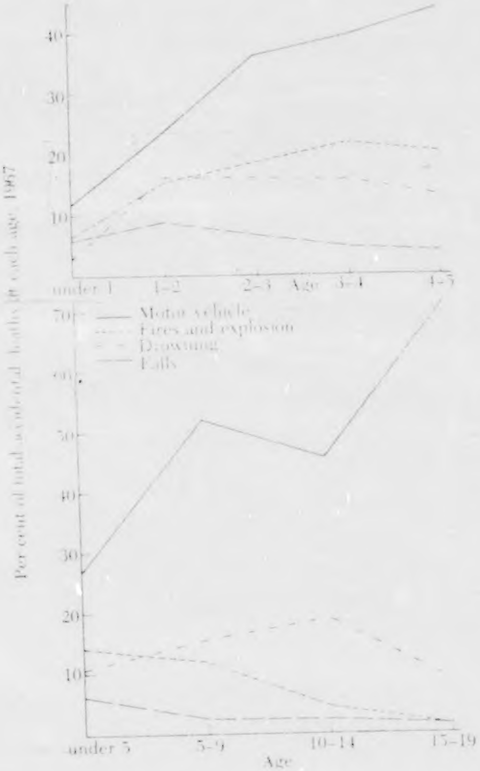
Type of Accident	Age (One-Year Grouping) Under 1 Year	1	2	3	4	Age (Five-Year Grouping) Under 5 Years	5-9	10-14	15-19
Motor Vehicle									
Total	321	367	484	464	431	2067	2079	1766	7889
Male	159	201	275	293	258	1186	1306	1177	5942
Female	162	166	209	171	173	881	773	589	1947
Fires and Explosions									
Total	189	242	244	258	199	1132	474	181	146
Male	92	129	136	155	107	619	258	113	86
Female	97	113	108	103	92	513	216	68	60
Drowning									
Total	68	252	215	174	130	839	638	733	976
Male	39	147	160	131	99	576	504	586	913
Female	29	105	55	43	31	263	134	147	83
Inhalation or Ingestion of Food or Objects									
Total	620	104	38	25	15	802	41	21	42
Male	366	67	22	18	6	479	27	14	24
Female	254	37	16	7	9	323	14	7	18
Falls									
Total	163	136	86	53	40	478	96	84	163
Male	93	78	48	39	24	282	66	61	132
Female	70	58	38	14	16	196	30	23	31
Poisoning by Solids & Liquids									
Total	45	151	73	36	20	325	17	14	133
Male	25	83	34	21	12	175	6	9	104
Female	20	68	39	15	8	150	11	5	29

*Selected data from Vital Statistics of the U.S., 1967

Taken from McFarland, R.A., & Moore, R.C., Childhood accidents and injuries, in Talbot, N.B., et al., Behavioral Science in Pediatric Medicine, 1971, p. 352.

FIGURE 6.41

Percentage of Total Accidental Deaths Among Children in 1967 Resulting from Four Major Categories of Accidents



The curves in the top part of the figure show the variation in children under 5 years of age by single years of age. In the lower figure, the data have been grouped in five-year intervals, covering the range from under one year of age through 19 years of age. (Based on data from Vital Statistics of the U.S., 1967)

Mc Farland, R.A., & Moore, R.C.,
Childhood accidents and injuries,
in Talbot, N.B., et al., Behavioral
Science in Pediatric Medicine,
1971, p. 353.

FIGURE 6.42

Deaths and Injuries Resulting from Accidents for Children Over One Year of Age: United States, 1966

Total Deaths 1-15 years	15,000
Total Injuries 1-17 years	19,000,000
Home Injuries	10,000,000
School Injuries	3,000,000
Street and Highway Injuries	2,000,000

U.S. Department of Health,
Education and Welfare,
Health Services and Mental
Health Administration,
National Center for Health Statistics

FIGURE 6.43

Nonfatal Injuries Classified by Sex and Age:
Annual Rates per 1000 Children

Age and Sex	Rate of All Injuries	Rate of Severe Injuries	Number of Children Injured
0- 3 Years			
Boys	287.8	30.8	1648
Girls	212.5	27.5	1488
4- 7 Years			
Boys	288.7	40.9	2307
Girls	192.9	25.9	2098
8-11 Years			
Boys	302.5	53.0	2082
Girls	187.0	31.2	1901
12-15 Years			
Boys	328.6	69.4	948
Girls	146.6	21.3	890

Manheimer, D.I., et al.: 50,000
child-years of accidental injuries.
Public Health Rep., 81: 522,1966

Taken from McFarland, R.A., & Moore, R.C., Childhood accidents and injuries, in Talbot, N.B., et al., *Behavioral Science in Pediatric Medicine*, 1971, p. 354.

Such conditions in the home as faulty wiring, poor heating and cooking equipment, and the presence of toxic or flammable substances, and such hazards in the neighborhood as dense population, busy traffic, industrial development, and lack of play space also represent accident risks.

Plumbism, or lead poisoning, is another environmental hazard. Although there are no national statistics on the incidence of lead poisoning, local studies have found between 0 and 60 suspected cases per 1,000 children aged one to six (Blanksma et al., 1969). Bachman et al. (1970), in a survey of Children and Youth projects, found that 24 of 59 projects considered lead poisoning a problem, and that the majority of these 24 were in large cities in the Northeast (see figures 6.44 and 6.45). Altogether, these projects estimated a total of 2,704 cases (see figure 6.46), a rate for 1969 of about 3.3 per thousand.

Most lead poisoning in children is the result of ingestion, and as absorption from the gastrointestinal tract is a slow process, the appearance of recognized symptoms is gradual. Lead poisoning is often overlooked in clinical diagnosis because its symptoms (loss of appetite, vomiting, constipation, pallor) are non-specific. Clinical signs may not be evident until the child has ingested lead for a period of two or three months (Smith, 1964; Zavon, 1964). Dramatic symptoms like seizures or coma may not appear until damage is irreparable. Death, mental retardation, cerebral palsy, blindness, learning defects, and kidney diseases may result.

Lead-based paint on wall plaster, and in peelings from ceilings and windowsills, is the common source of ingested lead. Old and dilapidated housing in urban slums often still has lead-based paint on the walls, and for the most part it is blacks and Puerto Ricans who live in these urban areas. A few small chips of paint may contain 100 mg. of lead, more than 200 times over a safe daily amount (Bachman et al., 1970). A random sample of 50 pedestrians in the lead belt of New York City revealed that 66% were unaware of any danger from lead ingestion; 34% thought it was dangerous, and 22% stated that paint or plaster might contain lead which was poisonous (Thomas et al., 1970).

Pica, the ingestion of non-food substances beyond the oral development stage in infancy, is often found in children suffering from lead poisoning. Several studies have shown evidence of pica in cases of poisoning of children ages one to five (Jacobinzer, 1966; Moncrieff et al., 1964; Griggs et al., 1964; Gutelius et al., 1962).

Bachman et al. (1970) believe that pica is most common among low-income populations, and that it does not occur much among middle- and upper-income groups. They suggest that among some low-income black women, the eating of clay, dirt or starch is culturally accepted, and they cite evidence of a study of 380 black children aged one to six, where pica occurred among 35%. Another study showed a higher incidence of pica among black children, and hypothesized that poor nutrition might be a factor. It was suggested that particular nutritional deficiencies might cause a craving for non-food substances that contained the missing nutrients (such as iron) (Cooper, 1957). Other studies found no correlation between nutritional

FIGURE 6.44

Is Lead Poisoning a Public Health Problem in the Children and Youth Project Area?

a. Given by Project Location

Number of Projects

	Central City	Perpherial Urban	Rural	Combinations	Total
Yes	19	3	0	2	24
No	17	6	6	4	33
Unable to reply	8	0	0	0	8
Total	44	9	6	6	65

Percent of Projects Which Replied

	Central City	Perpherial Urban	Rural	Combinations	Total
Yes	52.8	33.3	0.0	33.3	42.1
No	47.2	66.7	100.0	66.7	57.9
Total	100.0	100.0	100.0	100.0	100.0

b. Given by Region

Number of Projects

	I II	III	IV VI	V VII	VIII IX X	Total
Yes	10	8	1	5	0	24
No	4	4	9	7	9	33
Unable to reply	3	3	1	0	1	8
Total	17	15	11	12	10	65

Percent of Projects Which Replied

	I II	III	IV VI	V VII	VIII IX X	Total
	71.4	66.7	0	41.7	0	42.1
	29.6	33.3	100.0	50.3	100.0	57.9
	100.0	100.0	100.0	100.0	100.0	100.0

c. Given by Number of Eligible Children

Yes	1,609,700	50.8%
No	1,435,400	45.3%
Unable to reply	124,100	3.9%
Total	3,169,200	100%

Percent of Projects Which Replied

Yes	52.9%
No	47.1%
Total	100.0%

Bachman, G.D., et al., A report on lead poisoning in children and youth projects. Systems Development Project, School of Public Health, Health Sciences Center, University of Minnesota, Minneapolis, 1970, p. 4.

FIGURE 6.45

Projects Indicating Prevalence of
Lead Poisoning per 1000 Children*

Prevalence	-0-	.0-0.9	1.0-1.9	2.0-2.9	3.0-3.9	4.0-4.9	8.0-8.9	9.0-9.9	10	25	30	45	Total
	Projects which consider lead poisoning a problem in their area.												
Children:													
age: less than 1	8	1	2	0	1	0	0	0	0	1	0	0	13
ages: 1 through 4	0	1	2	1	3	1	0	0	2	1	1	1	13
ages: 5 through 9	4	1	4	0	1	0	1	1	0	1	0	0	13
	Projects which do not consider lead poisoning a problem in their area.												
Children:													
age: less than 1	13	4											17
ages: 1 through 4	11	6											17
ages: 5 through 9	12	5											17

*Some projects did not provide estimates of prevalence within age group. Excluded from the data are 11 projects which responded that lead poisoning is a public health problem in their area, 16 projects who did not, and 8 who did not reply.

Bachman, G.D., et al., A report on lead poisoning in children and youth projects. Systems Development Project, School of Public Health, Health Sciences Center, University of Minnesota, Minneapolis, 1970, p. 5.

FIGURE 6.46

Age	C & Y Project Population	Total Cases	Cases Resulting in: Moderate Brain Damage	Cases Resulting in: Severe Brain Damage	Reported 1969 Deaths
Under 1	179,700	45	8	5	0
1 - 4	718,700	2,394	450	270	4
5 - 9	941,600	265	50	30	0
	1,840,000	2,704	508	305	4

Bachman, G.D., et al., A report on lead poisoning in children and youth projects. Systems Development Project, School of Public Health, Health Sciences Center, University of Minnesota, Minneapolis, 1970, p. 7.

deficiencies and pica (Mellins and Jenkins, 1955; Lourie et al., 1963). Other studies found that brain damage, presence of pica in the mother, parental deprivation, and behavior disorders involving orality were associated with pica (Lourie et al., 1963; Gutelius et al., 1962; Millican et al., 1968). Pica and other oral habits such as alcoholism were common among the parents of children with pica.

A final health problem with some relation to the social and physical environment is that of dental care. Access to dental treatment will be discussed below. However, insofar as flouridated water is important in preventing cavities in developing teeth, children in rural areas where the water supply contains no flouride are at greater risk of dental problems, a risk compounded by the lack of preventive dental care among the poor.

Impact of the Health Care System

We have discussed the developmental consequences to the child of health risks in early childhood. We have also discussed the potential risks which his external environment may add to those biological ones -- and the fact that such risks tend to cluster together. In order to provide a full picture of the dimensions of disadvantage as it relates to health, we need finally to look, in a much more qualitative way since data are not very abundant, at the ways in which the health care system itself -- its structure, content, and operations -- interact with the child and his health.

The relationship between health care and the health of the individual receiving the care is not entirely clear. It is disputed in specific areas (such as the value of multiphasic screening for children), but belief in the efficacy of health care is clearly a part of our culture today, and it is beyond the scope of this study to fully explore the question. The related issue of quality of care is taken up below, and in the section on evaluative criteria we discuss at greater length the issue of outcome measures of health care. For the moment we shall accept the general proposition that if a child receives appropriate care in accord with existing standards of quality he is better off than if he does not.

Not so frequently analyzed are the systematic effects of health care delivery. These are particularly relevant to a discussion of public policy options since most large-scale programs (either service or financial) cannot be delicately regulated as to their effects on all individuals, but they can be studied for broader impact (frequently expressed in statistical terms). What we are interested in is how programs (e.g., Medicaid) or structures (e.g., private fee-for-service medicine) themselves determine the outcomes of illness in groups of people. Some of the following discussion will stray beyond children aged 0-9. This reflects a first systematic disadvantage to children -- our methods of health care delivery and financing underinvest in children and their health needs. Hence the data are frequently not analyzed specifically in terms of children. According to a special analysis of the federal budget for fiscal 1973, federal health outlays for children will amount to $2.1 billion in FY 1973, one-half of this for indigent children (primarily the estimated 11 million to be covered under Medicaid). However, this represents only 10% of the federal health budget, of which 60% goes to those over 65 and the remaining 30% to persons 22-64. These monies represented, according to the Social Security Administration, 54% of the total health costs for the elderly in 1970, but only 16% of those for children under 21.

In order to examine this and other disadvantages, we have broken the system effects of care down into three categories: Access to Care, Appropriateness, and Quality.

Access to Care

Access can be a significant variable in determining the health risks of childhood. Its impact can be divided into five subcategories: geographic, financial, psychological, legal, and group.

Geographic access. The well-established facts of the uneven distribution of physicians and of health resources in the United States have special implications for children. Seventy-five per cent of pediatric care is given by general practitioners. Pediatricians have remained at about 3-5% of practicing physicians since 1949 (American Academy of Pediatrics, 1971). In addition, pediatrics is still an almost regional specialty -- one-third of all pediatricians practice in New York, Massachusetts, and Pennsylvania. Since the increase in the number of physicians in general has kept pace with the population, pediatricians themselves are not in shorter relative supply today, but due to the continuing decline in the number of general practitioners, primary physicians for children are. Primary physicians include pediatricians and one-fourth of the general practitioners (studies have shown that is the average amount of their time devoted to children). Combining these groups yields a ratio of one primary physician to 2,248 children under 14 years of age in 1969, as opposed to a ratio of 1 to 1,483 in 1949 (AAP, 1971).

As with all specialties, pediatric practice is not attracted to areas of scarce population (a pediatrician needs a much larger population base to yield a profitable practice than does a general practitioner) and/or economic deprivation.

> The causes [of maldistribution] are not peculiar to pediatrics, but the problems are intensified because, as a general rule, the geographic areas with the highest proportion of children are also the most remote or most unattractive or most poverty stricken.
> (AAP, 1971, p. 216)

To take a particularly extreme example -- 47% of the American Indian and Alaskan native population (a group for whom the government has taken over responsibility for care from the private sector) is under 15 years of age (vs. a national figure of 31%). Yet in 1969 there were only 20 pediatricians among the 390 physicians in the Indian Health Service (AAP, 1971, pp. 152-6).

Within urban areas, poor children, like their parents, may be isolated from private practitioners and can obtain clinic care only via relatively expensive and time-consuming public transportation routes. Very rarely are such networks designed to facilitate access to health facilities by their clients.

A new kind of geographic access problem has sprung up with increasing government intervention in the delivery system. If a child is poor or otherwise defined as at risk, his access to Maternal and Infant Care and Children and Youth Programs is dependent on whether a large array of external forces have moved so as to locate an operating program in his locality. Although all the states receive money for maternal and child health and crippled children programs under the formula grants of Title V of the Social Security Act, the usefulness of those programs for the individual child depends on how his state has implemented the program -- whether it has put the money into service delivery in his area or into basic research or manpower training.

Flouridation, a public health measure which has consistently reduced dental caries among children by about 60% where it has been introduced into public water supplies, is again a geographic variable beyond a family's control, usually being dependent on a community both large enough to have a public water supply (thus denying its cheap benefits to rural children) and politically able to enact enabling ordinances.

Financial access. The issue of financial access is basically one of equity. Our society values health and accordingly treats health care as a valuable, scarce good. It also treats it as basically a private good. Medicine is practiced privately, primarily in private hospitals, financed primarily by private insurance (although government's contribution continues to rise).

Thus access often becomes a function of the ability to pay for services. Thirty to 40 million persons in the country do not have access to adequate health care because of inadequate income (Somers, 1971, p. 63). As the costs of health care have skyrocketed, some form of health insurance has become almost essential to permit sufficient and necessary utilization of services without severe economic hardship. In 1968, about 80% of the civilian non-institutionalized population had some amount of hospital insurance (coverage of ordinary hospital charges for inpatient care); 78% had surgical insurance and 65% had medical insurance (for inpatient physicians' services). These percentages tend to overstate actual coverage, which may vary from total service benefit provision to a very limited indemnity, with deductibles, co-payments, and other limits. In 1968, only 36.0% of total consumer health expenditures were covered by health insurance (up from 27.7% in 1960). Furthermore, the gap in coverage is largest for those who can least afford to meet their medical expenses. While only 8% of the under-65 population with family income of $10,000 or more do not have hospital insurance, 64% of those with family income under $3,000 lack such basic protection -- and as noted above, this is the most prevalent type of insurance. (All of these figures are from HEW.)

These figures refer to the entire population. While specific breakdowns for children are not available, the structure of our health insurance system suggests some special disadvantages for children. Insurance in general covers less than 40% of total consumer health expenditures; the largest gap in this coverage is for preventive, ambulatory care (routine office visits not related to a specific illness, non-hospitalized diagnostic tests, outpatient drugs, dental care of all kinds, and psychiatric care). The American Academy of Pediatrics estimates that 90% of child health care is delivered in an outpatient setting and that about one-half is for health maintenance, not care for acute illness. Hence current payment mechanisms stressing inpatient coverage mean that "payment for quality comprehensive child care is grossly inadequate" (AAP, 1971, p. 233). In view of this, the recent extension of compulsory Medicaid coverage to include diagnostic screening services for children under 21 is extremely important.

Theoretically, being poor and being without private insurance should not preclude mothers and children from obtaining care. Maternity and well-baby clinics are among the oldest activities of many state and local health departments, as are charity hospitals in many areas. However, studies have shown that even in clinics financial factors can remain among the significant deterrents to prenatal care (Monahan and Spencer, 1962). In some areas, women who could not afford private care were also ineligible for clinic care on the basis of income. The persistent inflation in medical care prices, plus the variability among the states in coverage for the "medically indigent" under Medicaid, are presently increasing this pool of persons above the poverty line but without adequate health care resources.

One final example of a health-related program will suggest the interaction of bureaucratic systems with financial access and hence with health. The federal food stamp program, administered by the Department of Agriculture, is frequently thought to be a potentially important tool for improving nutrition, a critical issue in early childhood. Participation in the program has never been overwhelming, however, even in extremely poor areas. Judith Segal (1970) points out the reason: the food stamp program is carefully designed so as not to substitute free food for previously purchased food but rather to act as a supplement. Although the value of the stamps increases with decreasing income, families must purchase the stamps, in minimum monthly amounts, for at least 50¢ per person per month. This creates insurmountable problems for families with no cash income or income for which one lump monthly sum adequate to purchase stamps is a budgetary impossibility or hardship. As testimony to the 1968 Citizens' Board of Inquiry demonstrated, many people are too poor to use food stamps (Segal, 1970; Hunger, USA, 1968). The cause of these access problems, in other words, may be fundamentally due to lack of sufficient income to feed one's family, but they are exacerbated by a system of nutritional assistance which values food purchases above achievement of adequate nutritional status. Recent changes in regulations may alleviate some of these access problems.

In summary, certain children are at special risk simply because their families are poor in a society of fee-for-service, privately insured health care which has not yet fully resolved those inequities. Furthermore, such inequities in some areas place children at special risk -- because the reimbursement system has not been designed to meet their special needs.

Psychological access. The general literature on the indignities and inconveniences associated with being poor and seeking medical care is extensive and persuasive (e.g., Duff and Hollingshead, 1968; Strauss,, 1967). Psychological barriers may be interpreted in at least two ways. One theory, along the lines of a "culture of poverty" argument, suggests that the poor or the disadvantaged place a low priority on health care, are less aware of illness in themselves and their children, and hence utilize services less and in less appropriate ways (breaking appointments, waiting until the last minute, using emergency rooms, etc.) The problems inherent in using utilization data to draw conclusions on preferred behavior in a system of pervasive financial and geographic inequities in access are still not recognized by some health analysts. This issue will be more fully investigated in the section on evaluation criteria. The conclusions of that review, however, can be accurately summed up here in a statement by the American Academy of Pediatrics:

> Yet there is little evidence of general apathy or of different attitudes or expectations toward the importance of health care, and most or all of the observed variations in utilization can be explained in terms of barriers imposed by the institutional arrangements for health care of lower socioeconomic groups. (AAP, 1971, p. 28)

The second interpretation of psychological barriers, and the one which we are most impressed by, is that medical care systems are often not designed or operated in ways which make them attractive, acceptable, and open to certain people. Requiring means tests before administering care, refusal of many non-profit private hospitals to admit (even in emergency rooms) indigent patients, lack of bilingual personnel in non-English speaking areas, hours of service which are not convenient for the users, and staff and space inadequate to avoid crowding and excessive waiting -- all of these circumstances are going to have a significant impact on the willingness or ability of poor people to use medical care until it is absolutely necessary.

Such circumstances may arise from a variety of causes -- racial prejudice, lack of sensitive training for personnel, inadequate resources of health institutions. One of the most important causes is the lack of fit between the system's goals and attitudes and those of its clientele. The emergency rooms and outpatient departments of large teaching hospitals are the major source of ambulatory care for many disadvantaged children and their families. While these institutions treat most people who come in the door, their main function is not a service one, but an educational and research one. The system's goals are maintaining a steady and adequate flow of "teaching material"; there are rarely staff arrangements facilitating continuity of care by one physician over time. These are clearly not the mothers' goals; "psychological distance" is one way of describing that misfit in expectations. Another important misfit is that between a welfare mentality which is primarily concerned with keeping chiselers off the rolls and helping only the "deserving poor", and the demand for service by a family requiring medical care through no fault of its own.

Evidence that changes in the systems involved can result in vast improvements is widespread. The evidence from neighborhood health centers, the Cornell Medical School Medicaid experiment in New York, and the prepaid group practices of H.I.P. and Kaiser-Portland in covering poverty groups supports the notion that patterns of usage are to a great extent influenced by the ways in which care is given (Sparer and Johnson, 1971; Goodrich, Olendzki, and Reader, 1970; Shapiro and Brindle, 1969; Colombo, Saward, and Greenlick, 1969). The evidence suggests that outreach efforts, new types of personnel with less professional distance (e.g., pediatric nurse practitioners vs. pediatric residents), and strong consumer/community participation in health care systems are important variables in improving psychological access (Notkin and Notkin, 1970; Silver et al., 1968; Patterson et al., 1969).

Legal access. Health care is generally not a legal right in this country. Certain groups directly under the "protection" of the federal or state and local governments (Indians, armed forces, and institutionalized persons) usually have some legislated provisions for health care. With the exception of the armed forces, these "rights" are often unmet and untested.

For the rest of the population, legal access to payment or reimbursement for health care is increasingly available through employee-employer or individual contracts for health insurance, through federal entitlement (Medicare), state entitlement (Medicaid, workmen's compensation, institutions for the mentally ill, etc.). Within the private sector, entitlement to continuance of care by a physician, once initiated, and protection against incompetent care are provided by civil law (and criminal in the case of some malpractice suits) under medical ethics statutes. However, at this time, there is no legal right to services per se. For example, a county cannot be required to provide a hospital unless it decides to do so; the last doctor in a rural area cannot be prevented from leaving even if his departure means no medical care for the residents. Within the last few months, the federal government has taken a major step by proposing new regulations which would require all hospitals and nursing homes receiving money under the Hill-Burton program to provide a specific amount of free care for the poor, at the risk of otherwise losing federal funds. Other recent suits are attempting to force private non-profit voluntary hospitals also to open up their doors to the poor or lose their tax-exempt status as charitable institutions.

Special groups. Much of the evidence previously cited on developmental and environmental criteria has emphasized the effect of race on health risk, status, and utilization of health services, independent of income, education, or geography. This gap in access, in other words, seems to be in certain ways identifiable by group membership. Other groups, in whom membership itself is statistically a predictor of suboptimal health status and access, are American Indians and Alaskan natives, other non-white persons, migrant workers, children in poor rural areas, and children not living with their families (i.e., children in foster care, in institutions for the mentally retarded, or in various detention centers -- jails, residential homes, mental institutions).

The implications of such gaps can be seen in terms both of special risk and of equity. Migrant workers clearly live lives of much greater risk than most of us do -- of accidents, epidemic diseases (gastritis, schistosomiasis, etc.), malnutrition, tuberculosis, parasitic infestation -- and yet they receive even less health care. A 1966 study (Siegel) found no migrant children with complete immunizations; the AAP in 1970 estimated perhaps only one-third had any immunizations and one-sixth had reasonably complete ones (AAP, 1971). In 1969, after six years of the Migrant Health Act, two-thirds of the 900 counties where migrants live temporarily still had no grant-assisted programs. And combining all sources of funds for those programs, the average per capita expenditures were $12 annually. Special efforts to meet the special needs of these groups are not adequate. But in addition, migrant workers are frequently denied equal access to more general care programs. In most states, they are ineligible for state general assistance (which carries with it eligibility for some minimum or even ample amount of medical care) or Medicaid (via welfare eligibility) because they do not meet residency requirements.

Dr. E. S. Rabeau, Director of the Indian Health Service, has pointed out the dimensions of a problem which applies not only to the Indian population but also to migrant workers and to a large portion of the black and rural poor populations. His remarks emphasize that these groups live under unique conditions which will require special, broadly defined health measures to assure them of even token equity in achieving healthy lives.

> [There is] a continuing need for added emphasis to achieve acceptable health levels for Indians and Alaskan natives and comparability to the general population....The inferior health status...is

> largely due to lack of basic sanitary facilities, unsafe water supplies, gross unsanitary practices, poor and crowded housing, inadequate nutrition, emotional problems inherent in a transitional culture, impoverished socioeconomic status, and limited education. (Quoted in AAP, 1971, p. 156)

Appropriateness of Care

Access is fundamentally an economic function, having to do with the supply and distribution of scarce resources. Even certain kinds of psychological access can be improved merely by economic changes (increasing the staff or floor space of facilities, hiring more bilingual personnel), although part of achieving that access is certainly non-economic. Appropriateness, as we shall use the term, is a non-economic, qualitative function, having to do with the content of those resources, the fit between what medical science and the health care system find appropriate practice and the needs of young children. We have identified three subcategories of appropriateness which have a major impact on children.

Medical science. We are concerned here with whether we are directing our medical efforts at the most critical risks for children. We have identified those risks as prenatal environment, low birth weight, infant mortality and morbidity, sensory and neurological deficits, especially if undetected early (either congenital or due to disease or neglect), child abuse, accidents, and dental problems.

We have already demonstrated the large gaps which presently exist in even basic prenatal and maternity care for all mothers and for detection of sensory and neurological deficits. These problems, however, seem to stem not from a lack of medical interest but from problems of access, of providing the benefits of medical science to all mothers and children in ways they can afford and use easily. On the other hand, for the abused or neglected child, the child with certain congenital problems (such as sickle-cell anemia), lead paint poisoning, nutritive diseases or deficits, or with multiple handicaps, there is frequently little in the medical or health system of use to him. Pediatric medicine has not taken some of of these critical areas as its own first priorities; nor have the wider systems which also have impact on the child. Recently, the problems of sickle-cell anemia and lead paint poisoning have begun to be dealt with more realistically and adequately. There is also growing concern about child abuse and redefining the boundaries of it and other social illnesses of childhood. However, the other areas remain inappropriately unexplored.

> No theory has been developed to predict the effects of changes in nutrient intake on the overall performance of an individual....The lack of a scientifically established relationship...makes a definitive nutrition adequacy standard an unattainable goal at the present time. (Segal, 1970, pp. 18-19)

> Perhaps the most important deficiency is lack of a clear-cut national commitment and policy that care of the handicapped child is an integral part of total responsibility of the government to its population. Unless the problem of the handicapped child is viewed as a humanitarian obligation -- as a concrete, important domestic problem, requiring adequate economic and technical support -- the creative programs required will not be forthcoming. (AAP, 1971, p. 58)

In other words, the system of health care has not always directed its resources in such a way that it reflects the rates of incidence, prevalence, and severity of childhood risks. Thus some children may end up being at greater health disadvantage than others not because they are sicker or poorer but because resources have not been directed at their illness or problem. We are not talking here about rare childhood diseases, but common ones.

Manpower. While the American Academy of Pediatrics estimates that 90% of child health care is ambulatory and 50% of that care is for health maintenance (AAP, 1971), the allocation of pediatric resources often reflects a more acute illness, inpatient, physician care pattern. We do not suggest that this threatens the child when care is in fact given (although the evidence strongly suggests that American children undergo unnecessary tonsillectomies and adenoidectomies) (Perrott and Chase, 1968). But, going back for a moment to an economic analysis, money spent building unnecessary hospitals, or hiring only doctors instead of mixing them with pediatric nurse practitioners, at some point will mean that a child (probably a poor, high-risk one) will not have free or inexpensive outpatient care, screening facilities, or immunizations available. In those circumstances, the consequences of his illnesses or handicaps will be more serious than if the system had been organized differently.

Another dimension of this problem is the relative paucity and distributional characteristics of pediatricians.

> Pediatrics remains a predominantly urban, white, middle-class and upper-class phenomenon. The poor, non-white and rural dwellers have had to utilize other resources. (AAP, 1971, p. 100)

The number of medical students who choose pediatrics as a specialty is, in our system, an uncontrollable variable, since there are no national quotas or even recommendations for such distribution. Although this problem is beyond the scope of this study, it is important to note this characteristic of the system which has a major impact on the availability of pediatric or child health manpower -- and its price.

Appropriate manpower may also mean improving psychological access by increasing the numbers and responsibilities of community workers in health facilities. Of particular importance to children are workers who can assist mothers in taking care of their own and their children's nutritional needs and in serving as advocates to obtain safer environmental conditions if necessary.

Delivery modes. We have touched on this broad area by noting the misfit between the ratio of preventive to acute care services which children need and the actual ratio of such services. Several other aspects are important:

a) Although what developmental evidence we have suggests the critical nature of the first four years of life, the health (and educational) systems do not facilitate systematic access to children below school age. Particularly in the case of chronic physical disease and handicapping conditions, early detection and treatment may be critical to enable the child to develop to his full potential (AAP, 1971, pp. 56-7). Achieving this early access has been one of the major goals of Head Start health programs.

b) Because of their isolation in the Department of Agriculture, the federal food supplementation programs are not oriented either toward delivery of the most possible food to hungry children and families or to best identify such people and their actual needs. Furthermore, it is difficult to use food programs either as trade-off against other programs (e.g., investment in nutritional disease treatment) or as a part of a comprehensive community health program.

c) In general, the present health care delivery system is disorganized and frequently cannot deliver comprehensive, coordinated care to children and their parents. The arguments for prepaid group practice, reorganized outpatient departments in hospitals, and neighborhood health centers have been well made elsewhere (National Commission on Health Manpower, Vol. II, 1967; AAP, 1971, pp. 117-27; Sparer and Johnson, 1971). It might be useful, however, to note some findings from a major review of evaluation data on prepaid group practice which relate specifically to some of the risks and needs of children and mothers which we have identified. The review cites strong evidence that prepaid group practice:

--tends to increase utilization of preventive health services (general check-ups, prenatal and postnatal care), especially for usually underpriviledged segments of the membership (non-white and Puerto Rican);

--tends to increase readiness (and reduce delay) in seeking care;

--tends to reduce substantially the disparity between high and low socioeconomic groups in the use of services;

--tends to increase the use of specialists for children and for childbirth; and

--clearly leads to decreased premature birth rates and rates of perinatal mortality (standardized to age of mother), for both white and non-white populations. A slight lessening of the gap between white and non-white rates was also reported. (Donabedian, 1969)

The importance of the findings on specialist care is suggested by results from a comparative evaluation of OEO Neighborhood Health Centers and other providers in which the performance of solo general practitioners in obstetric and pediatric cases was clearly inferior and "woefully inadequate" (Morehead, Donaldson and Seravalli, 1970, pp. 9-11).

This difference in the quality of care, in addition to the problems of finding one's way through our complex, pluralistic system, suggests that the results of private medicine, increasing specialization, and multiple public programs weigh most on those families whose children are frequently most in need of comprehensive care.

> This fragmentation (of preventive and restorative services and institutions) imposes a much larger coordinating burden on parents in poverty than is imposed on better situated parents. (AAP, 1971, p. 29)

Quality of Care

The issues of whether outpatient department care is really worse than the services of a private physician, whether pediatricians give better care than non-specialists, of whether "charity medicine" on the wards of teaching hospitals or county hospitals is dangerous as well as demeaning, and of to what extent a good doctor-patient relationship (implying both continuity and mutual respect) improves one's chances of cure or comfort -- all these issues are both of critical importance and without clear answers. Aside from such value-laden motives, the fact is that there are few analytically useful definitions of the terms used in the questions. Although the work of Duff and Hollingshead (1968), Strauss (1967), Kosa et al. (1969), and Goodrich et al. (1970), among others, has looked seriously at the issues of an inequitable distribution of quality of care, with rather dismaying findings, the implications for policy are not easy to draw.

We will discuss the whole problem of defining quality of care in the section on evaluative criteria. What we can say is that there is no evidence that children suffer any more risks of poor quality of care than the population at large.

Summary

We conclude by summarizing briefly the particular aspects of the health care system which can potentially affect the outcome of a child's health disadvantages, especially his development. As should be clear by now, this section is not supported by masses of definitive data. This reflects the comparative lack of research interest in the area of political-sociological-economic analysis of health status. But it also makes clear that the issues involved have not yet been shown to have demonstrable, irreversible developmental impact on children. They need, however, to be more seriously studied in the future, as the possibility of permanent harm exists, and they should certainly be kept in mind in evaluating existing and proposed federal programs for children.

First, the federal government does not invest in children in proportion to their numbers. Even if one accounts for the higher rates of hospitalization and generally poorer health of the elderly (for whom 60% of federal funds for personal health services are expended), the figures are not nearly comparable. Only 10% of federal personal health services expenditures are for children under 18. This six-to-one advantage for the elderly is greater than the generally accepted ratio of need (elderly-to-general population) of four-to-one. Looking at the figures from another perspective, according to recent SSA figures, the federal government pays for only 16% of total health care costs for children, but 54% of total costs for the aged. (It pays even less -- 11% -- of costs for those 19-64.) The basic reason for this difference is that national policy has accepted provision of a minimum level of health services as a right for all Medicare beneficiaries. Such a right does not exist for children. (See figure 6.47.)

Second, the free enterprise, private market nature of much of the health care delivery system is leading to an overly-specialized corps of physicians (at the expense of primary care physicians) and an excessive emphasis on acute inpatient care in a fragmented manner. These trends particularly affect children (especially those whose families are too poor to buy protection or coordination), who need primary, preventive, ambulatory care.

Third, some of the special health risks of children -- early diagnosis and treatment of chronic disease, congenital problems, and handicaps; environmental dangers (accidents, lead paint poisoning, sanitation), and malnutrition or hunger -- have not been priorities in medical research and delivery.

Fourth and finally, the potential impact on the child of attractive, comprehensive and responsive health care of high quality, truly designed to meet his needs, on his later health status and utilization behavior has not been fully appreciated.

Issues Concerning Goals and Standards

As the previous review has shown, it is possible to demonstrate the existence of untreated health problems among significant subpopulations of American children. In a general way, needs, goals and standards for public health care programs are indicated by such evidence.

FIGURE 6.47

Estimated Health Care Expenditures by Population and Income Groups[1] (in millions of dollars)

	1971 actual	1972 estimate	1973 estimate
Total, all recipients	15,912	18,876	19,915
Aged (65 and over)	9,585	11,272	11,772
Other adults (19-64)	4,655	5,461	6,042
Children and youths (0-18)	1,672	2,142	2,100
Indigent, total	7,227	8,817	8,867
Aged (65 and over)	3,752	4,598	4,586
Other adults (19-64)	2,637	3,084	3,224
Children and youths (0-18)	838	1,135	1,057
Nonindigent, total	8,685	10,059	11,048
Aged (65 and over)	5,833	6,675	7,187
Other adults (19-64)	2,019	2,378	2,819
Children and youths (0-18)	834	1,007	1,043

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[1] Does not include foreign nationals receiving health care services outside the United States.

U.S. Office of Management and Budget, *Special Analyses, Budget of the United States Government, 1973*, Washington, D.C.: U.S. Government Printing Office, 1972, p. 169.

There are, however, problems in setting goals and standards for health programs that are specific and that can be used to evaluate programs and measure their effectiveness against that of other programs. At a nuclear level -- at the level of the interaction of one physician and one patient -- a popular stereotype about health care holds it to be an exact and evaluable service. The patient offers specific symptoms for which there is one, or a limited number, of proper diagnoses and treatments. When the proper treatment is given the benefit to the patient is visible, clear, uncontroversial and valuable. From this point of view, crisis-oriented medical treatment is sufficiently cut and dried so that physician peer review can go over the sequence of diagnosis and treatment and can evaluate the adequacy of the medical service. But, even at the level of individual health care, this picture of exactness and evaluability overestimates the certainty of the process.

When we seek to establish goals and standards for organized health care, benefits of a neighborhood health center for its catchment area, or the national utility of a Maternal and Infant Care Program, evaluation becomes even less simple. The question now becomes one of estimating the health benefits for groups of individuals participating in a complex institutional arrangement. How should one evaluate the efficacy of a new organization or suborganization offering health care? What goals and standards apply to a new package of health services, and how should they be used in program planning and resource allocation?

The literature indicates that a decade of serious efforts to bring forth a federal system of program planning and evaluation has to date yielded only preliminary estimates of the possibilities of an evaluation system. The following discussion reviews the issues confronting evaluation of health care programs at the federal level.

Evaluative Criteria

Before beginning a discussion of evaluative criteria and standards, it is important to take a brief, but hard, look at the assumptions embodied in the apparently simple definition of evaluation: "Compare accomplishments with stated objectives". Weckworth (1969b) reviews the basic assumptions of this definition, assumptions that:

1. objectives are stated
2. in measurable terms;
3. accomplishments are demonstrable
4. in the same measurable terms as the objectives;
5. one knows what "compare" means, i.e., one can establish that one outcome pattern meets objectives more adequately than another.

A quick look at our present inability to meet these assumptions will lay the groundwork for the presentation to follow.

1. Most new health programs originate in legislation which does not state objectives in a form usable for evaluation. Lack of clear and/or consistent objectives in federal health legislation is the rule rather than the exception. Even if legislative intent is clear and internally consistent, such intent is expressed in terms of general long-term goals instead of specific short-term objectives.

2. Measurement of program outcomes faces two consistent difficulties. First, there are not techniques adequate to measure most health status and social value objectives. Second, programs often have conflicting goals so that achievement of one is associated with a diminution of the other.

3. The complexity, tediousness, or cost of appropriate evaluation measures may make demonstration of national program accomplishments counter-productive or impossible. See, for example, Sullivan's (1966) discussion of the practical difficulties encountered in translating some measures of health status development at an experimental level into a national health index.

4. What we can measure may not be translatable into progress toward an objective. Usually, what we can measure is some aspect of health care and usually what we are concerned about is population health status. It is not always certain that discrete improvements in health care translate simply and directly into improvements in health status either for the individual or for population groups.

5. Finally, we do not yet know how to move from program evaluation to decisions about programs. If a Maternal and Infant Care project does not meet an objective of having all mothers seen by a specialist before the third trimester, should it be penalized or receive increased resources to extend its outreach activities? If a new program produces an increase in the reported prevalence or incidence of chronic disease, is this a good or bad sign? Health conditions may be deteriorating. People may be surviving longer and hence becoming susceptible to new diseases, or the project may have developed better methods of data collection and case counting.

We have considered the shortcomings in our present ability to meet Weckworth's set of implicit assumptions. Much more could be said about each kind of shortcoming. This would be one way to discuss critically the present state of the art of health care evaluation. But perhaps enough has been indicated to make a point now upheld by all who have undertaken critical analysis of contemporary evaluation of health care services. Evaluation of health services -- explicit, objective comparison of accomplishments with stated objectives -- is not yet fully feasible.

This shortcoming in our present ability to make a quantitative assessment of effectiveness of health care applies to programs for adults and for children. Because we cannot estimate effectiveness, we cannot estimate cost-effectiveness. Cost estimation offers some new problems independent of effectiveness estimation. We do not yet know how to put dollar values on important qualitative inputs in health care -- inputs denoted by terms such as "community control", "quality of care", "patient satisfaction", etc. See, for example, Levin (1968). The problem of cost-effectiveness has received much attention because, independent of questions about adequacy, questions about cost of health care have become an increasing public issue.

How well can we approximate evaluation today? This will be discussed in the remainder of the chapter to follow. In order to describe the number and variety of existing approximations to health care evaluation, we list several components of the evaluative process.

The Infrastructure of Evaluation

Health care evaluation can only take place on a basis of socially shared ideas, values, and techniques. There must be an "infrastructure" of shared knowledge. Such an infrastructure would include the following elements:

--a definition of health.

--an accepted health status index or indicators.

--an agreed-upon system for determination of needs.

--fixed professional standards of care.

--shared social, economic, political conceptions about health and health service delivery.

This infrastructure is a complex mixture of cultural and technological standards. The culture attaches value to certain conceptions of health, health need, patterns of care, medical practice, and methods of evaluation. Evaluation must find a way to assign programs a value within that social belief system. The technological problem is, fundamentally, that of learning how to generate data in quantifiable form so that it may be "assimilated" and assigned some value within the cultural belief system. The technology must satisfy professional standards, but the fruits of the technology must satisfy public standards.

Some examples may help to clarify the issues involved:

--Advances in health care and social conditions have caused morbidity to replace crude mortality as the best index of health status, either for an individual or for the country. Technical difficulties in operationally defining morbidity preclude or retard development of equally useful new national health index measures. In this case there is no cultural barrier to such development, only a technological and conceptual one.

- --Attempts to implement water fluoridation as a powerful dental health measure have been thwarted frequently because the socio-political system in some communities has not reached a facilitating consensus on the distinction between public health/public welfare and Communish plots/personal liberty. In this case, the technology both to implement the program and to develop clear evaluation exists, but the cultural environment is not ready to accept it.

- --According to research methodology, the best evaluations should be controlled experiments or quasi-experiments in design. However, ethical prohibitions against deliberately withholding a technique or drug of known or highly probable efficacy, in order to create the necessary control group, make such designs rarely feasible. Similarly, the political process into which evaluation feeds may not have the patience to wait the years often required to do a thorough evaluation. In this case, two subcultures are at odds.

A list of elements of infrastructure was noted above. Let us look now at these elements and briefly discuss their cultural and technical bases.

Definition of health. Health services can only be characterized as good or bad, adequate or inadequate, in terms of some general conception of health. The World Health Organization's definition of health is the one most frequently cited in the current literature and legislative debates:

> Health is a state of complete physical, mental and social well-being and not merely the absence of disease and illness.

This definition is probably a fairly reasonable statement of what most people think of as health. It is, however, a definition couched in general terms and it is not operational. It represents only a statement of an ideal for health programs, but it locates what is effectively the nuclear conception from which health services begin and to which evaluation must seek to return.

Health status index or indicators. The first issue, then, is to operationally define "health" as a target. Health status indices have been attempted frequently, but: "At present, there are no practical quantitative measures of health despite numerous attempts to develop such a measure." (Thorner, 1971, p. 526) Sullivan (1966) presents an excellent review of past and present attempts to arrive at health status indicators. There is much work being done on sophisticated morbidity-based indices, utilizing such indicators as disability continua, activity-restriction days, function, etc. (c.f. Fanshel and Bush, 1970; Shapiro, 1967; de Geyndt, 1970). It appears reasonable to expect some progress toward more adequate measures in the near future.

A great deal of the concern to develop a general index of health arises from the belief that factors aside from health care have a strong influence on the health of the individual. There is the question of whether general environmental factors -- e.g., housing, sanitation -- can be compared against health care as a contributor to public health. We do not know much about how the environment causes or affects disease, nor do we know how health services influence health status.

> Probably no more fundamental information would facilitate the conduct of end-result studies than knowledge of the natural history of disease, the physical, social and economic consequences of disease during well-defined intervals following onset, and the role of preventive and therapeutic medical care in altering the course of disease. (Shapiro, 1967, p. 21)

> It is my opinion that an overemphasis has been placed in the past on the linkage between medical services and health. Although many of these services contribute directly to health, in some cases use of the most accepted medical knowledge and techniques yield negative results. (Bailey, 1970, p. 37)

> Most importantly, we lack clear-cut ideas about whether, given a choice, we would deem it more imperative to ameliorate one health problem as opposed to another. (Levin, 1968, p. 1042)

The absence of definitive evidence about the existence, direction, and extent of the causal relationships between health care and the health of individuals or of communities has a special significance for evaluation studies. Too often, such studies are saddled with the implicit burden of proving such relationships if they are expected to relate outcomes to inputs and prove program effectiveness (or, even worse, cost-effectiveness). Negative or ambiguous results often occur simply because of the overestimation of what the evaluation study can be expected to do. (This negativism of evaluation may then be enhanced by the conservatism of research tradition regarding rejection of null hypotheses, a conservatism which may be "inappropriate in the formulation of decision criteria in evaluative research... regarding innovative programs." [Caro, 1971, p. 24])

Sparer and Johnson have confronted the issue of criterion in their evaluation of OEO neighborhood health centers:

> ...While we can be hopeful that health status will be improved because of increased use of health services... we should prudently resist the temptation to "evaluate" program success by (this).
>
> These are research questions basic to the whole field of medical care for which basic studies have yet to be initiated on a community-wide scale and for which analytic methods or models are not available. (Sparer and Johnson, 1970, p. 3)

Their response to this problem has been to accept the "conventional wisdom" of health practitioners as a basis for defining those standards to be used as criteria in evaluation:

> In the absence of research data which relates medical care inputs to health or family functioning outcomes a program assumption can be made consistent with current social values, and indeed the values expressed by practitioners of public health, medical care, and social services. (Sparer and Johnson, 1970, p. 4)

A similar shift from an attempt to measure health to an attempt to measure effectiveness in terms of current professional concepts of good service can be seen in Weckworth's approach to the evaluation of Children and Youth projects:

> We believe that health is ultimately only a judgment of whoever has the right to decide. And our society has vested that right to decide in a select group of professional disciplines. Therefore, we wanted data to document what the outcomes or progress toward outcome of health were -- as the judges said it was. Even the totality of all hard data measures of health and health service delivery cannot equal the summary judgment of the professional with the right to decide. (Weckworth, 1969, p. 15)

De Geyndt has pointed out that the quality-of-service approach to program outcome is limited since non-medical factors can and do interact strongly with medical factors in public health. He argues that "in order to overcome this methodological roadblock, a broader framework for the assessment of quality of care should be adopted." (de Geyndt, 1970, p. 33) He suggests that attention should be paid to target population or community-wide impact instead of individual, micro-level analysis. The effect of the argument is to insist that health care evaluation must be related to some basis of more public significance than professional norms. This means that evaluation must look outside the health care facility. The health of the community may not be derivable from individual health measures (e.g., widespread physical examinations), but probabilistic population measures may be workable; i.e., infant mortality rates as measures of the general health of the population group from which they came. De Geyndt is essentially [illegible]ng that some first-generation measures of health must be attempted, that evaluation studies begin to try to establish an infrastructure as they go along.

[illegible] third response to the dilemma of criterion seems to have the greatest present utility for child health care and also the greatest operational directedness. It is exemplified by the decision of a federal program analysis group on child health in the mid-60's:

> There is no universal index of good or bad health among children. Therefore, in looking at the problem of assuring needed health care, we necessarily primarily concern ourselves with some particular health problems which are highly prevalent, which are highly adverse, and which can be mitigated or even avoided given proper health care. (Wholey, undated, p. II.3)

This approach recognizes the inequity inherent in any approach which, given the current quantity and quality of evaluation studies, makes program decisions based solely on the evidence of such studies. Basically, it interjects another level of professional judgments and values into the health care policy. It uses available data about health needs and projects a pattern of intervention from them. While obviously a reasonable response to the current situation, this approach has some potential for misuse, for influence by too narrow definitions of problems or solutions, and for the capriciousness of the bureaucratic and legislative decision-making processes. However, it seems to be a valuable tool for the projection of goals and standards for services to children's health. The priorities and needs for child health are better defined than in many sectors of health care. Furthermore, it introduces the notion of risk or uneven need. That is, it recognizes the hard reality that not even in America are all -- or nearly all -- people in the enviable position of requiring assessment only by increasingly sophisticated and enlarged measures of positive health. As Sullivan has stated:

> For large populations as they exist today...disease, illness, and death are still ever-present problems. The occurrence of these events is a more compelling guide for allocation of resources than variations in positive health. (Sullivan, 1966, p. 7)

Determining health needs. A current analysis of the health needs of children has identified four kinds of needs recognized at this time in federal programs:

--deficits in health status

--deficits in health facilities and manpower

--specific diseases and health condition needs (e.g., Crippled Children programs, Maternal and Infant Care programs, Medicaid for the blind and disabled)

--access to services (i.e., income or other barriers to care have led to deficits or potential deficits)

(Minnesota Systems Research, Inc., 1972)

The Minnesota group ultimately arrived at proxy indicators for need representing a set of indices which "are associated in a probability sense with the presence of health problems":

1. selected demographic measures,
2. measures of poverty,
3. infant mortality,
4. immunization levels,
5. selected disease conditions, and
6. nutritional indicators.

This list of needs recognized the earlier decision of the Program Analysis Group on Child Health to give priority to "health-depressed areas", using risk factors of high infant mortality rates, poverty, and substandard housing. (In actuality, the infant mortality rate, "the traditional best single indicator of community health status", was the primary determinant in the earlier analysis [Wholey, undated, p. II.3].)

If we accept the real issues involved in choice of a health delivery system, we arrive at needs having to do with quality of care. There are two interrelated general proxy measures for the need for comprehensive care, that Weckworth has termed the "simultaneous dimensions" of:

7. continuity in the flow of services, and
8. completeness in the spectrum of services. (Weckworth, 1969a, p. 4)

And finally, to reflect the growing awareness of patients' psycho-social needs in interaction with their health needs, we can add a measure of:

9. patient satisfaction. (This indicator has been suggested by Donabedian, as cited by de Geyndt, 1970, p. 31.)

With the exception of infant mortality, the nine indicators listed are in rough order of their social and political acceptance as legitimate indicators of need. Likewise, the technical precision and validity of measures associated with these indicators are in rough descending order. The first five are considered relatively sound bases for need estimation, given the general difficulties with morbidity indices (although, since children are generally the healthiest and least disabled portion of the population, even gross measures of reduced function or disability may have a greater than normal utility). Nutrition indicators are infrequently used. First, inexpensive, quick methods of testing for levels of nutrients, vitamins or minerals are not available or reliable. Furthermore, the linkages between such findings (based on clinical examinations, laboratory tests, food intake observations or food intake diaries) and nutritional states have not been investigated at the level of sub-clinical malnutrition with any great precision.

The last three indicators depend for their significance on some societal or professional belief in the efficacy of health services. They are receiving increasing attention from health policy analysts and evaluators, and if developed they should prove a great step forward in expanding the value and completeness of evaluation studies.

Professional standards. As we have noted, there is some tendency in contemporary evaluation work to use professional standards of quality for evaluation of health programs. This is debated in the evaluation literature, but the debate does not deny the fact that existing medical standards of good practice and good care do offer the largest, most detailed, most thoroughly considered, and most generally accepted understanding of the effective ways to engage in health care. Generally, program evaluators tend to take professional standards for granted. They concentrate on issues and criteria that are not now fully comprehended or articulated under existing normative medical notions of adequacy or quality of services.

In an age when evaluation is still struggling to come to life as an art or a science, the present primacy of professional standards must be recognized and probably the normative enforcement of professional standards should be studied more carefully and thoughtfully than it has been. Generally, across the spectrum of services considered in this report, the situation is the same. At present, in a not fully articulated way, the goals and standards of service are defined by that which is considered to be good practice in a professional community. School teachers and administrators define what good schools are. Social workers define what is acceptable in family intervention. Within the infrastructure of health service, we can today locate the "state of the art" of health evaluation most directly in the system of professional standards.

Unfortunately, the detailed issues of the content of medical care, quality review from the standpoint of peer review, quality control committees, medical audits, and the value of specific procedures or treatments are outside the scope of this analysis. Professional standards are now used as independent variables in comparing different systems of care. For example, such criteria as the number of Board-certified physicians in a system, the percentage of women receiving annual Pap smears, or rates of elective surgery have been used to reflect clear differences in patterns of care in prepaid group practice and private fee-for-service care. There is the underlying assumption that professional quality, reflected in such indicators, will determine the social value of the program.

Social/political/economic context. As has already been indicated, a variety of authorities now contend that health is not solely determined by use of medical services:

> Health and well-being result not only from the use of medical services but from the operation of many biological, psychological, social and economic factors as well. Under ordinary circumstances it is difficult to isolate the effect of medical care from among the many interacting factors that affect health. (Donabedian, 1969, p. 23)

In general, we have as little hard data on the causal relationships between these factors and general health as we do on the links between health services and general health. In fact, the data are usually even rarer, since the conventional wisdom rarely seeks for factors outside of medical care for treatment of health problems. Only for some topics in public health have strong links been demonstrated. It is frequently argued that a great majority of our social improvement in general health status through history has been due to improved sanitation, water supplies, and shelter. Those who make this argument hold that changes in health service programs can be expected to have only a marginal impact on the general health of the population:

> In my opinion, changes in health or medical care programs, except in some instances where a major technological or organizational change is introduced, are unlikely to produce effects on health which are easily measurable....The effects of the other variables in the model [educational level, economic level, physical environment, political situation, and others] and measurement errors are usually stronger or as strong as the effects produced by the change in the health or medical care program, and the difficulty of controlling these variables and errors may vitiate any attempt to measure the program's effects, whatever method is used.
> (Thorner, 1971, p. 529)

Social, political, and economic factors influence evaluation at three levels. First, since they are among the determinants of normative beliefs about health status and normative health behavior (defining illness, seeking care, following treatment, etc.), they need to be considered in evaluating the impact and process of health care delivery. Second, they act as external and internal constraints on program viability. A very effective program in health terms may not succeed if it does not have social, political, and economic viability.

Finally, social, political, and economic factors in health may suggest alternatives to direct provision of health services for intervention to improve health status. Full consideration of the trade-offs between intervention modes (i.e., health care vs. housing vs. income) is beyond the direct concern of this analysis, but the evaluation framework proposed would permit comparison of programs under different auspices which were designed to attach the same problem.

The Evaluation Process

Into the infrastructure discussed above, the evaluator interjects the structure and process of evaluation research. The most useful program evaluation would have two interrelated functions: one related to the specific content and purpose of the program in question, and the other related to the program as one among many other social programs. In other words, one can ask what we can know about a child health program both as it relates to child health and as it relates to other federal programs or other strategies of social reform.

The following six components seem essential to a complete evaluation of child health programs:

--Process

--Organization

--Outcome

--Impact

--Advocacy

--Actionability (viability)

The first four components are those most commonly found in evaluation designs. Two of these -- outcome (or end-result) and process -- are the predominant ones (c.f. Shapiro, 1967; Donabedian, 1968), while some designs incorporate all four (c.f. Weckworth, 1969b; de Geyndt, 1970).

Process. The process component of evaluation rests on an examination of the technical aspects of quality of care (content) but views those aspects in a context of sequential interaction between a patient and the delivery of health services.

> The process view tends towards the concept of the "whole patient" and evaluates not only the work of the physician but also the contributions of other health workers. Total management of the patient encompasses the prevention of illness, the arrest of pathological processes, and physical rehabilitation....Coordination of the process becomes important and the enabling role of administration is crucial....Patient care is supplemented by medical care, and the term "delivery" is a decisive part of the quality for it is the system which enables the process to take place. (de Geyndt, 1970, p. 26)

The existing criteria usually used for process evaluation are not the coherent, coordinated set suggested by de Geyndt's model. There are, first, what might be termed the structural elements of process (c.f. de Geyndt, 1969):

--program elements covered and their priority (preventive, diagnostic, curative, ameliorative, restorative, rehabilitative, and emergency care)

--to whom provided (elegibility criteria, catchment area)

--by whom rendered (types of personnel)

--when and where provided

--formal and informal linkages to other health or social services providers.

For young children, for example, one would expect to see priority placed on preventive and diagnostic services either available to all children or targeted to high risk groups.

Second, there are the dynamic, process-of-process elements that de Geyndt has termed the "physiology" of process, "the interrelationships or the degree of interconnectedness of the variables and attributes subsumed under context, content, and the anatomy [static] part of the process," (de Geyndt, 1969, p. 10). These interrelationships include:

--staff referral mechanisms

--interchangeability of skills

--innovations in delegation of tasks (e.g., pediatric nurse practitioners, community health aides or outreach workers)

--actual patterns of treatment ("who does what, when, and to whom")

--decision-making process.

The reporting system developed by the Systems Development Project for the Children and Youth Program, now being extended to the Maternal and Infant Care Program, is a good example of this type of evaluation. The system tracks registrant cohorts from intake through health assessment, any ordered treatments, to health supervision (long-term care management, routine preventive services) in several functional areas (medical, dental, nursing, psychology, nutrition, social service, speech and hearing, physical therapy, and occupational therapy) (Weckworth, 1969a). The system, while requiring a great deal of quarterly generation of data by the individual projects, appears to be a very sensitive instrument to actually track the progress (and regressions or returns for care) of the patients and of registered persons who require no immediate health care.

Finally, making overt use of the underlying assumption that the health care process has a positive effect on health, some evaluation studies have used specific occurrences or procedures in the process of delivery as proxy measures for the effectiveness of that process. This procedure has appeal because it greatly simplifies the data collection and reporting system (as opposed to, say, the complexity and extent of the data required to support Weckworth's evaluation procedure). On the other hand, such simplicity may be achieved at the expense of validity. Typical process index measures include visits per year (broken down into types), immunizations, diagnostic screenings, dental visits, registrants, hospitalization rates and length of stay, etc. But process outputs, especially utilization rates, have to be related to need and medical practice standards to be meaningful. For example, a system can generate a large number of visits per year per registrant because initial screening and assessment are inadequate and hence registrants use the facility basically as an emergency room. Or the same index can reflect excellent initial screening, followed by an extended program of treatment, rehabilitation services, health education, and community outreach.

Without data on the process itself, crude utilization data are virtually impossible to interpret correctly.

> Utilization data are fairly easy to assemble and compare but very difficult to interpret. In the first instance, utilization of services depends on the occurrence of a condition which must be recognized by the patient, or by those responsible for him, to require medical attention. Once care is initiated by the patient, further use of service is largely determined by the manner in which the physician manages the case, subject, of course, to continuing cooperation by the patient. (Donabedian, 1969, p. 10)

In particular, use of utilization data to determine underlying need (e.g., whether the poor are sicker; whether the poor need education to use services in a more appropriate way) will generally both underestimate and misinterpret needs if such an estimation does not take into account process variables -- especially elegibility, place and time of care provision, and program linkages.

One current attempt to develop better denominators for utilization data is the distinction of "registrants-active registrants-users" built into one OEO neighborhood health center evaluation effort (Strauss and Sparer, 1970).

There is disagreement as to the value of process evaluation per se. Donabedian has stressed its vital function for the feedback of evaluation into program change and planning.

> Outcomes...provide the most convenient and valid indicator of whether the allocation of resources under one system of care (or in the practice of a given provider) is more or less effective or efficient. But more detailed analysis of the medical care process itself is necessary if the reasons for lack of effectiveness or low efficiency are to be pinpointed and corrected. (Donabedian, 1968, p. 184)

On the negative side, there is the continuing struggle to find dynamic process measures which are both valid and obtainable on a systematic basis.

> The development of measuring instruments to express the interrelationships between the dynamic elements of the care process and the interactions among participants represents a major difficulty. (de Geyndt, 1970, p. 27)

Wholey et al. (1972) go even further and note (citing Williams) that:

> the description of the treatment to which individuals have been exposed can be complex and very expensive....Precise evaluation of the effectiveness of more complex treatments within an operating program, especially evaluation that would tell why a particular local project worked, are beyond existing evaluation methodology. (p. 99)

It seems likely that causal determinations are generally beyond present methodological models. However, the consideration of certain aspects of the care process would seem essential to understanding any outcomes or impact which are later alleged to have resulted from the program; some attempt should be made to assess them, but probably on a selective basis.

Organization. Organizational, or structural, evaluation examines such variables as facilities and equipment, manpower and staffing patterns, organizational arrangements (formal and informal) and financing mechanisms. The interrelationship between structure and process is suggested by de Geyndt's term "the anatomy of process", which he uses to refer to structural program elements such as: specialization or division of labor, standardization, formalization (of criteria and standards), and centralization (delegation of authority).

Organizational and structural analysis is a rather distinct branch of program evaluation with stronger links to sociology and organizational theory than to health care research. The methodologies are also generally more developed than is the case in most health care evaluation, and hence, while the causal linkages between organizational patterns and health status may not be very clear, at least the evaluation process itself is slightly more likely to be rational, coherent, and comprehensive. For example, in their attempts to devise a conceptual framework for the evaluation of the Children and Youth projects, Weckworth and his colleagues found that studies of business firms and institutional operations provided them with the most useful insights (de Geyndt, 1969, pp. 3-6).

Outcome. Outcome evaluation is usually considered the ideal evaluation, since it attempts:

> to determine the change that has taken place in...a measurable aspect of the health status of an individual or of a group of individuals...as a result of the conditions that affect the content, the process, and the structure of health care. It posits that the ultimate criterion to judge the quality of health care rendered lies in an alteration of the health of the recipient of this care. (de Geyndt, 1970, p. 29)

There are problems, however, which have already been delineated in our discussion of infrastructure capabilities:

> The desirability of determining quality of medical care by its effect on some measurable aspect of health is matched by the pessimism among researchers about the possibility of success in dealing with the issue. (Shapiro, 1967, p. 7)

Almost all of the work on end-result evaluation has been done in the last fifteen years (de Geyndt, 1970, p. 32) and the problem continues to be much studied. In a review of past and on-going studies of end-result evaluation, Shapiro (1967) concludes with measured optimism about progress toward the development of more adequate measures and more comprehensive end-result studies. De Geyndt (1970) summarizes a review of outcome studies by noting that five main types of measures have been used, measures of:

--mortality

--morbidity

--disability

--physical functioning

--social functioning

Other measures used for certain types of studies include surgical procedures (rates of appendectomy and hysterectomy, while seeming to be utilization rates, also reflect institutional practices and controls and so are reasonable measures for hospitals and systems of medical care), birth weight and Apgar scores (used in a so far unreported evaluation of Maternal and Infant Care projects), and rehabilitation. De Geyndt also notes the important measures suggested by Donabedian of patient and provider satisfaction.

In his review and synthesis of health status indicators, Sullivan (1966) reduces the diversity of attempted morbidity measures into three categories:

--clinical evidence

--subjective evidence (e.g., health surveys which ask respondents to report illnesses and utilization behavior)

--behavioral evidence (loss of time from work or school, institutional confinement, activity restriction, medical expenditures).

Fanshel and Bush (1970) report some promising work in developing an outcome measure of function, which they find from a review of the literature as "central to any generalized notion of well-being", as an operational, quantifiable indicator of changes in population health status over time. Their index formulates function as a continuum, then divides it into a range of mutually exclusive categories. Every member of a population group can then be classified as belonging to one and only one category at a point in time. Progress through these categories (positive or negative) can then be observed and measured. The extent and duration of variance from the positive pole of complete well-being becomes a measure of the suboptimality of the health status of the group or individual.

Outcome evaluation ultimately depends on the existence or estimation of health status indices, and the general lack of operational concepts in that area has already been discussed at length. Although Shapiro also discusses such methodological problems of outcome research as adequate control groups, selectivity bias, and sources of observational data, both he and de Geyndt (1970) agree that the "major deterrent has been the difficulty in defining the measures to be used" (Shapiro, 1967, p. 28). De Geyndt also mentions a temporal aspect of the problem: measures other than mortality or acute morbidity (e.g., social and physical functioning, and disability) cannot be made at the time care is rendered. Thus they cannot be used for cross-sectional evaluation of quality of care, but frequently require a long "lead-time".

Looking specifically at child health care, however, we find that the situation in many ways is better than average.

1. Infant mortality (along with maternal mortality) is not only the best general community health indicator we have, but it is a direct indicator of risk to children -- an indicator of death and of impairment and deficits only marginally non-fatal (e.g., severe brain damage, perinatal malnutrition, extreme prematurity).

2. The measures of low birth weight and Apgar scores can be unambiguously scored and appear to have a high probabilistic relation to subsequent health deficits of various kinds. However, a reliable direct measure of prematurity to replace low birth weight would improve the precision of the relationship.

3. Morbidity in infants and young children is frequently due to infectious diseases which, because of their acute characteristics, are currently the most accurately measured type of morbidity.

4. It also appears that dental health deficits can be quite accurately predicted by the simple negative measure of lack of annual visits to a dentist.

The major problem in child health outcome evaluation is that other critical aspects of child health, functioning, and development which are clinically obvious and publicly recognized (at least by certain segments of the population) have not proved quantifiable with the same degree of reliability. In particular, chronic conditions, malnutrition, child abuse or neglect, and sensory/neurological deficits are difficult to measure and to relate to health services received.

> Except for data from studies of congenital malformations, little hard data exist on the incidence and prevalence of chronic conditions in childhood. Populations examined (and conditions counted) in the major studies are usually not comparable. Neither are definitive data available on the extent of disability caused by chronic illness. (Wholey, undated, p. II.6)

As noted in the definitions of outcome evaluation which opened this section, only "measurable aspects of health" can be dealt with in this type of evaluation. While it is probably a good thing to measure and assess all of those elements of health which one is able to measure, there is a grave danger that those variables which are supported by quantified data fare better during program analysis and funding. The approach of Wholey's group is a hopeful sign that clinical evidence and professional judgment are not slaves to evaluation data. The fact remains, however, that there is much more money these days in maternal and infant care than there is in nutritional supplements, chronic disease detection and treatment, child abuse, and in reducing the handicapping effects of sensory and neurological dificits such as blindness, mental retardation, and deafness. The case remains intuitively open that efforts in these areas (along perhaps with some indirect efforts in housing and income maintenance) would in the long run do as much good as efforts to better prenatal care and obstetrical deliveries.

Impact. Impact evaluation is an attempt to extend the concept of outcome to encompass the socio-psychological and socioeconomic variables that influence health status and the success of health programs. This concept, developed or at least advocated by de Geyndt, Weckworth, and the Systems Development Project, deals with the "impact of the health services system of the lives of the recipients and on their contribution to society. This means thinking in terms of total target populations or total communities." (de Geyndt, 1970, p. 33) Suchman (1967) uses the term to mean the degree to which effective performance (effectiveness being a measure of efforts meeting stated objectives) is adequate to the total amount of need. The congruence between these two definitions is indicated by the use of Weckworth's framework for impact evaluation to analyze the gaps in the system of child health care (Minnesota Systems Research, Inc., 1972). That framework, in the alliterative style popular among health planners, consists of six A's:

1.	Appropriateness.	This criterion has two dimensions -- a measure of need (measured by proxy indicators of risk factors; see infrastructure discussion, supra) and programmatic elements with priority ranking possible.
2.	Availability.	This criterion contains factors of --eligibility --services by eligibility category --standards --financial mechanism(s)
3.	Accessibility.	This criterion examines --how care is delivered --sequencing of service (to what degree continuity of care is reached within the program)
4.	Acceptability.	--to seekers of care --to providers of care --to payors

5. Accountability. This criterion evaluates two forms of accountability:
   - --dollar expenditures
   - --accomplishment or outcome of program (such accountability being shared by creators, implementors, and users)

6. Adaptability. This criterion is the dynamic linkage of the first five criteria over a temporal dimension.

The first four A's are seen as a dependent sequence, "a sequence of progressively more involved commitment to specifying programs of service" (MSR, Inc., 1972, p. 47). This concept of sequencing evaluation, i.e., looking at appropriateness before studying availability, is a major innovation. For example, it recognizes the potential value of utilization data, but only within a previously specified context:

> Within the constraints of both availability and acceptability, the utilization of the services of programs, when choices do exist, is the ultimate reflection of acceptance. (MSR, Inc., p. 46)

Accountability is seen as an overriding variable, essential regardless of the levels of the other variables. However, at least at this stage of the group's work, this criterion is not very clear as to the specific types of accountability which are envisioned.

In many ways, impact evaluation incorporates many of the components of evaluation already mentioned -- content, process, organization, and outcome -- into a conceptual framework relating them to each other and to the infrastructure element of need. A determination of appropriateness assures some correlation between health needs and program elements and hence requires prior outcome evaluation studies or assumptions. Acceptability factors are clearly process variables. The major independent significance of impact evaluation is its concern with program effect in relation to total need. This presumably would discourage elegant, but drop-in-the-bucket program designs; it is also a critical input for any sort of comprehensive health planning, where the major concern is in summing up the totality of health and health-related activities in an area and comparing them with some picture of the total health needs of the community (c.f. Kerr and Trantow for a fuller explanation of this use of assessment or evaluation).

Because it incorporates the preceding elements of evaluation, with all their attending limitations, impact evaluation is not operationally well-defined and has a large subjective and value-laden component. It is particularly important, therefore, that while such evaluation be carried out on all major new programs (and old ones for which it has not been done), its limitations and underlying assumptions be made quite explicit. Furthermore, new and experimental programs should not be expected to demonstrate positive impact which has not or cannot be demonstrated, via existing evaluation tools, for more established ones.

Advocacy. Advocacy is used here to refer to those goals and objectives to which health programs are addressed, both explicitly and implicitly. This is a target which is rarely mentioned specifically in discussions of program evaluation. When it is mentioned, the aspect dealt with is the ambiguous or conflicting nature of stated program intent -- either in legislation or in guidelines. Since evaluation of any kind requires stated objectives of some sort as a focus, there are immense difficulties in designing an evalution study for federal programs whose initial enabling legislation is usually vague and represents compromises of various types -- and whose nature is then altered, often beyond recognition, in their administration and regulation. Thus it should be part of any program evaluation to trace the legislative history of the program; to identify some of the hidden agenda items to which it was addressed; to relate those goals or objectives to actual priorities as reflected in agency guidelines; and to relate those priorities to the needs, objectives, and constituencies which the projects in the program themselves feel that they are addressing. Such an analysis is not only fascinating and instructive in its own right as a study of the process of social policy implementation, but it also is essential to a meaningful (and equitable) evaluation of program outcomes or process. One of the most valuable results ~~of such study~~ is making explicit the non-health goals of purportedly health-directed programs, since "the true purpose of a health program may be only peripherally related to health" (Thorner, 1971, p. 531). Elinson and Herr (1970), for example, characterize the neighborhood health center movement as largely a political and social reform movement. The "latent" objectives they found included:

1. Improving the image of the black male in poverty communities;
2. Stimulating and maintaining solidarity among migrant Chicano farm workers;
3. Pacification of hostile communities by colonial powers;
4. Discharging missionary service obligations of the medical-hospital establishment;
5. Filling a political void in social and economic action;
6. Politicization or radicalization of youth.

Advocacy evaluation may seek for the correspondence between program goals and objectives and other national, local, and individual goals and priorities. Fanshal and Bush (1970, p. 1022) seem to have this in mind when they formulate complete performance analysis as including a measure of conformation to "society's rules of ethical and rational behavior". One might add "political behavior".

Advocacy evaluation enables one to assess whether, even though itself effective, a program may not be counterproductive in the light of other concurrent efforts. For example, when viewed from a community with tremendous perceived health needs and desires to meet them, the current array of categorical federal programs with incompatible eligibility, reporting systems, and control requirements seems not so much beneficent as harmful and irrational. Similarly, as the social values of health care as a right, consumer participation or community control, and comprehensive care become more widely accepted, existing and planned programs need to be reexamined in light of those values, even if they are not designed to directly implement such values.

Actionability. Actionability, or viability, addresses itself to the second function of evaluation defined at the beginning of this section -- evaluation of a program as a program. Some advocacy evaluation is pertinent for this function also. A program clearly at odds with prevalent cultural or political trends does not stand much chance of survival or success, regardless of the medical and financial soundness of its structure and operation.

Actionability evaluation, however, would include several other factors:

--funding: its adequacy and stability; strings attached which may affect program implementation.

--field of relevant actors with potential impact (local board of health vs. innovative clinic; medical society control of licensing vs. new professional training programs, etc.).

--political climate (e.g., election-year hesitancy to innovate or raise budgets).

--internal feasibility of achieving objectives (e.g., expecting medical schools to work closely with community groups in co-sponsoring a program without extensive preliminary preparations).

In other words, it is not fair to judge a program a success or failure without examining the environment into which it was placed and the basic nurturance it was given. This kind of evaluation can be seen as an attempt to evaluate programs as one input into an existing system. Weiss and Rein (1969) have characterized this approach as a "non-experimental methodology for evaluation research" appropriate for broad-aim social programs. They call first for a more descriptive, inductive methodology, concerned more "with learning than measuring"; this approach has much in common with the case study method of evaluation and analysis. Second, they note the systems perspective which can address "such issues as the way in which the program makes a place for itself, the new stresses it introduces, and the way the system accommodates itself to the program, as well as...the issue of what individual and institutional benefits the program brought into being" (Weiss and Rein, 1969, reprinted in Caro, 1971, p. 296).

Not only can such a systems perspective provide a richer and more dynamic understanding of innovative health programs, but the intelligent use of data from such a perspective can also increase their influence and ability to survive political or cultural battles.

> It is obvious that the decisions are made in the political arena, in a broad social and economic context, influenced by unstated objectives often unrelated directly to health. These program objectives, if recognized and overtly stated, could be evaluated by appropriate techniques. However, an evaluation which is constrained solely to the effects of the program on health can be expected to have only a partial influence on the decision process, and quite often a minimal influence, depending on the relative strength of the influence of the nonhealth factors. (Thorner, 1971, pp. 531-532)

Of particular importance is a consideration of how a program fits into and changes the administrative structure to which it is attached. As Williams and Evans have commented in an analysis of evaluation of Head Start:

> In thinking about the development of evaluations, it must be remembered that after a decision is reached, the further hurdle remains of translating the decision into effective operating policy so as to improve the performance of the agency's programs. Those who plan evaluations need to be sensitive to an agency's administrative structure through which policy decisions are implemented for, in the final analysis, the test of the effectiveness of outcome data is its impact on implemented policy. (Williams and Evans, 1969)

An excellent example of the difficulties of survival of even the most carefully researched, documented, and agency-supported health programs is that of the fate of the major program analysis on child health carried out by a high level HEW task force in 1966-67 (Wholey, undated; Levin, 1968). Wholey notes first that while the 1967 Child Care Act proposed by Johnson and later rewritten by Congress still included the major elements recommended by the program analysis group, "the new legislation was not supported by increased fiscal year 1968 funding....In a very tight budget year, Congress took a general position of not funding new programs." (Wholey, undated, p. III.4) Even more discouragingly, he notes that "by fiscal year 1970, except for continued emphasis on family planning programs, the new thrusts in the Child Health Act of 1967 had largely disappeared from the Administration's program requests." (p. III.5)

Finally, we should briefly mention the importance of actionability (and advocacy) evaluation applied to evaluation studies themselves. It should be clear from the large array of issues mentioned in this discussion of evaluation, and from the difficulties and limitations associated with each, that no one program could possibly afford to do this type of complete evaluation. Decisions need to be made on when, where, how, and by whom evaluations should be done.

> [One] way to look at evaluation is as a programming input, which may be subject to evaluation just like other inputs. In cost-benefit terms, the cost of evaluation should be related to the benefits that evaluative data and judgments contribute to programming efficiency or effectiveness. A heavy investment in formal evaluation is most likely to be justified when a program is expensive, when its impact is potentially great but uncertain, and when there is a great potential for diffusion of programming concepts.
> (Caro, 1971, p. 7)

Thorner likewise suggests that studies of outcome or effectiveness should be carried out in carefully selected situations, with concern for transferability of results to other places and situations, "so that end results in service programs can be inferred from the study of process or intermediate goals, in the manner indicated by Shapiro (1967)." (Thorner, 1971, p. 532)

Wholey's program analysis group found in 1966 that the federal government

> had no system for managing evaluation of the effectiveness of its programs...there was no system for planning what research and evaluation studies were required to measure the overall effectiveness of federal maternal and child health programs or the relative effectiveness of different projects within these programs; and there was no system for review and use of program evaluation and project evaluation studies in reaching policy decisions. (Wholey, undated, p. IV.1)

Despite the subsequent strengthening of the Office of the Assistant Secretary for Planning and Evaluation and the increase in evaluation funds directly under its control,[17] there is little evidence that the situation is substantially different today. (For an excellent and more optimistic discussion of the growing HEW coordination of planning and budgeting, see Inglehard, 1971.) One important attempt to bring together a comprehensive review of federal evaluation efforts and recommendations toward development of an actual "federal evaluation policy" is the recent work by Wholey and others (c.f. Wholey et al., 1972). They, for example, suggest four levels of evaluation from simple project monitoring to program impact evaluation with criteria appropriate for each level. The ultimate usefulness of these recommendations, however, is limited by their overly optimistic, rather narrow, PPBS-oriented attitude toward evaluation methodology. Their review of the politics of evaluation and general recommendations for more planning, funding, and accountability for evaluation are very pertinent, however.

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[17] Up to 1% of appropriated funds, under several pieces of legislation, is or can be earmarked for evaluation; OASPE gets 25% of this money directly.

Conclusion -- Evaluation and Planning

> Evaluation is a decision-making tool. Its success or failure must be measured, therefore, in terms of its impact on changing program policies and resource allocations. (Wholey et al., 1972, p. 46)

Evaluation is a feedback mechanism in the setting in which we are considering it. The formalized conception of the nature of that feedback in recent years has been the PPB system: Planning-Programming-Budgeting (c.f. Lyden and Miller, 1972). While a full discussion of the PPB or other program analysis method is beyond the scope of this paper, we can suggest the importance of good program evaluation to such methods. Program evaluation when coupled with cost-effectiveness studies becomes the basis of program analysis, in which various existing or proposed programs are compared and weighed before integrated program recommendations are made. (See Wholey, undated; Wholey et al., 1970; and Lyden and Miller, 1972, passim, for examples and favorable reviews; see Levin, 1968, for a critical look at cost-effectiveness studies.) Program analysis can be used to define a problem for which no programs presently exist and to consider alternative means of solving it. Unlike program evaluation, which usually continues (if it exists) for the life of a program or beyond it, program analysis is generally a one-time, major effort, usually addressed to areas considered to be in need of major change (Seidman, 1970).

The quality of such analyses is greatly influenced by the quality of the underlying evaluative studies: "Repeated PPB studies without input of program effectiveness data are likely to become wheelspinning exercises." (Wholey, undated, p. V.2)

Given the state of the art of health care evaluation, it is not possible to conclude this discussion with a neat, prescriptive list of goals and standards for children's health programs. It seems reasonably clear that all evaluations of children's health programs undertaken to date have been tentative, exploratory, and limited in their possibility of definitiveness. However, the recent literature has been projecting conceptions or models of evaluation which seem more adequate than previous models derived from PPBS. It also seems clear that there are important gaps in what we have termed the "infrastructure", the system of beliefs and knowledge to which an evaluation must feed back.

Nevertheless, it seems reasonable that much better evaluations could be done, at least in the area of child health programs, using only existing data techniques and methodological resources, combined with a more comprehensive approach to evaluation. This hopefulness finds support in estimates presented by Wholey et al. on the existence of conditions for evaluation in selected federal social programs. Even if one compensates for their perhaps over-abundant belief in the possibilities for evaluation, the fact remains that maternal and child care programs appear relatively to be the most amenable to evaluation methodology (Wholey et al., 1972, Table 6, p. 109).

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Appendix I

Longitudinal Relationships among IQ, SES Factors, Educational Attainment, Income, and Occupation: The Jencks et al. Estimate Using Path Analysis

Until this point we have discussed each variable in isolation, always stressing that other variables must be considered in conjunction with the variable under discussion. Currently, however, we have little of the information needed in order to assess the relative contributions of several variables to an outcome variable. One of the exceptions to the dearth of attempts to compute relative contributions is an attempt by Christopher Jencks, Marshall Smith, and their colleagues to relate twelve variables using the technique of path analysis.

As is well known, correlations between variables establish the co-incidence of the two variables, but they are silent about the causal relationships that bring about the co-incidence. Path analysis is a statistical technique for making estimates of causation. If one has a set of intercorrelated variables one can arrnage them into several plausible networks of causation. Each network is a hypothesis. Path analysis then uses all the observed intercorrelations between pairs of variables to derive a path coefficient, a weight, for each hypothesis. For example, suppose one had four variables, A, B, C, and D, with observed intercorrelations. One might hypothesize:

(1) A causes B, which causes C, which causes D.
(2) A and B cause C; B and C cause D.
(3) A, B, and C cause D.

Any diagram which interconnects variables A, B, C, D with directional arrows is, in effect, a hypothesis. Path analysis will assign a weight to it. Path analysis is, then, fundamentally a goodness-of-fit test to imputed network causation hypotheses. It should be noted that it is a test that rests upon very demanding assumptions about the underlying causal system.

The twelve variables used in the Jencks et al. path analysis are:

(1) Father's occupational status (POP OC): rating of father's occupation, assessed by the Duncan scale where possible;
(2) Father's educational attainment (POP ED): highest grade of school or college completed by the respondent's father;
(3) Father's IQ (POP IQ): father's score on the Binet Vocabulary, the Otis, IQ test, or a military aptitude test;
(4) Educational attainment (ED): highest grade of school or college completed by the respondent;
(5) Early test scores (IQ-11): generally group tests, often purporting to measure "aptitude" rather than "intelligence", but correlations between scores on group "aptitude" tests and individual "intelligence" tests tend to be very high; tests administered in the sixth grade wherever possible;

(6) Adult test scores (AFQT): scores on one of the military classification tests, such as the AFWT, AGCT, or Army Alpha;
(7) Occupation status (OC): measured using the Duncan scale;
(8) Income (INC): only money income and income of respondent;
(9) and (10) Family background (EF-IQ and EF-ED): hypothetical variable; weighted combination of all the non-genetic characteristics that make siblings alike; includes economic status, parental education, family size, parental interest in education, attitudes toward achievement, neighborhood characteristics, schools, region, etc; the hypothetical index of family background that predicts test scores (EF-IQ) is not perfectly correlated with the hypothetical index that predicts educational attainment (EF-ED), although they may embody the same underlying family attributes;
(11) Parental genotype (GP): genotypic test scores;
(12) Respondent's genotype (GC): IQ genotype of the individual respondent.

Data used in the path analysis are primarily data from non-farm white males covered by the 1962 Current Population Survey, reported by Blau and Duncan, 1967, and Duncan, Featherman, and Duncan (1968). Test score data were obtained from other studies.

The "observed" correlations (unadjusted to take account of measurement error) among eight variables are presented in Table X. The correlations among variables in this table do not exclude the effects of other variables, e.g., the correlation between IQ-11 and ED does not assume that POP OC is held constant. In the path analysis, the figures given will specify the relationships between two variables when other variables are held constant.

In the technical appendix to the book, Jencks et al. detail the sources for each of the correlations. For any other than the very casual reader, we stress the importance of reading the Jencks appendix in order to understand both the sources of the data and the limitations and assumptions of the model.

To estimate the effects of unmeasured variables, i.e., genotype and family background, Jencks et al. used correlations between relatives who share different proportions of genes and who were raised either together or apart. By assuming that genes affect educational resemblence between brothers could be attributed to (1) similar IQ scores, (2) family background (EF-ED), or (3) brothers' effects on one another. This assumption allows estimation of the effects of family background from correlations between brothers.[1] The estimates of "true" correlations are listed below:

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[1] Jencks et al. state that this is a "simplifying assumption"; indeed, it is likely that genetic factors do have an effect via characteristics in addition to IQ, but the information on what effects and how much effect is unknown.

TABLE X

Observed Correlations Between Characteristics of Native White Non-Farm Males

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) POP ED	1.00							
(2) POP OC	.509	1.00						
(3) POP IQ	.630	.450	1.00					
(4) IQ-11	.300	.300	.480	1.00	1.00			
(5) ED	.382	.420	-	.550	.630	1.00		
(6) AFQT	.305	.314	-	.830	.612	.450	1.00	
(7) OC	.303	.369	-	.460	.330	.310	.399	1.00
(8) INC	.184	.238	-	-				

$r_{GC,EF\text{-}IQ} = 0.354$
$r_{GC,IQ\text{-}11} = 0.823$
$r_{EF\text{-}IQ,IQ\text{-}11} = 0.584$

In addition to using the original correlations among variables in the path analyses, Jencks used correlations which have been corrected according to the assumptions that all discrepancies between successive reports on scores are random errors and that other types of error are either absent or cancel one another out. The estimated "true" correlations between variables for white non-farm males aged 25-64 in the early 1960's are presented in Table Y.

There are few important differences between the table of "observed" correlations and the table of "true" correlations, and the results of regression analyses are quite similar for the two correlation matrices.

The path analysis technique enables one to use known correlations in algebraic equations to solve for unknown correlations. The path model using an additive regression equation has several limitations, however. For one, non-linear relationships cannot be investigated. Secondly, non-additive relationships between the various determinants of adult economic success cannot be explored. A third limitation of the model is its inability to deal with heteroscedasticity. Nevertheless, Jencks et al. think that the single path model is a valuable means of summarizing data:

> Recognizing these limitations, we nonetheless think that simple path models summarize the relationships between men's characteristics as accurately as any alternative model available, and that they do so in a way which makes the overall character of these relationships much clearer than more complicated models. Furthermore, additive models are the only ones that allow us to combine data from diverse sources, since researchers rarely publish enough of their data to allow more sophisticated extrapolations. (p. 621)

Figure 1 (which uses "observed" correlations) and Figure 2 (which uses "true" correlations) present simple path models of the causal connections among different characteristics. We shall not present in text the relationships detailed in the figures.

The only measures of family environment used in Figures 1 and 2 were father's education and father's occupation. Attempts to determine the relative contributions of father's occupation, father's education, and father's IQ to IQ-11 were unsuccessful (See Jencks et al. for explanation). As an alternate strategy, the overall effect of all aspects of family background was assessed. A number of assumptions are made as a result of the definitions of variables used, and these assump-

TABLE Y

Estimated True Correlations Between Characteristics
of Native White Non-Farm Males

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) POP ED	(.823)							
(2) POP OC	.640	(.769)						
(3) POP IQ	.680	.502	(.920)					
(4) IQ-11	.345	.357	.522	(.920)				
(5) ED	.426	.485	-	.580	(.977)			
(6) AFQT	.358	.382	-	.924	.680	(.880)		
(7) OC	.350	.440	-	-	.648	.502	(.913)	
(8) INC	.214	.287	-	--	.353	.349	.441	(.896)

Source: Correlations in Table X divided by geometric mean of reliabilities in the diagonal. (Except that $r_{POP\ OC,\ POP\ ED} = r_{OC,\ ED}$ adjusted for restriction of range, $r_{POP\ IQ,\ POP\ ED} = r_{AFQT,\ ED}$; $r_{POP\ IQ,\ POP\ OC} = r_{AFQT,\ OC}$; and $r_{AFQT,\ IQ\text{-}11}$ is 0.85/0.92 since the 0.85 estimate involves Binet scores with presumed reliability of 0.92, not AFQT scores.)

FIGURE 1

Relationships Between Characteristics of Native White Non-Farm Males
Aged 25-64 in 1962, Based on "Observed" Correlations

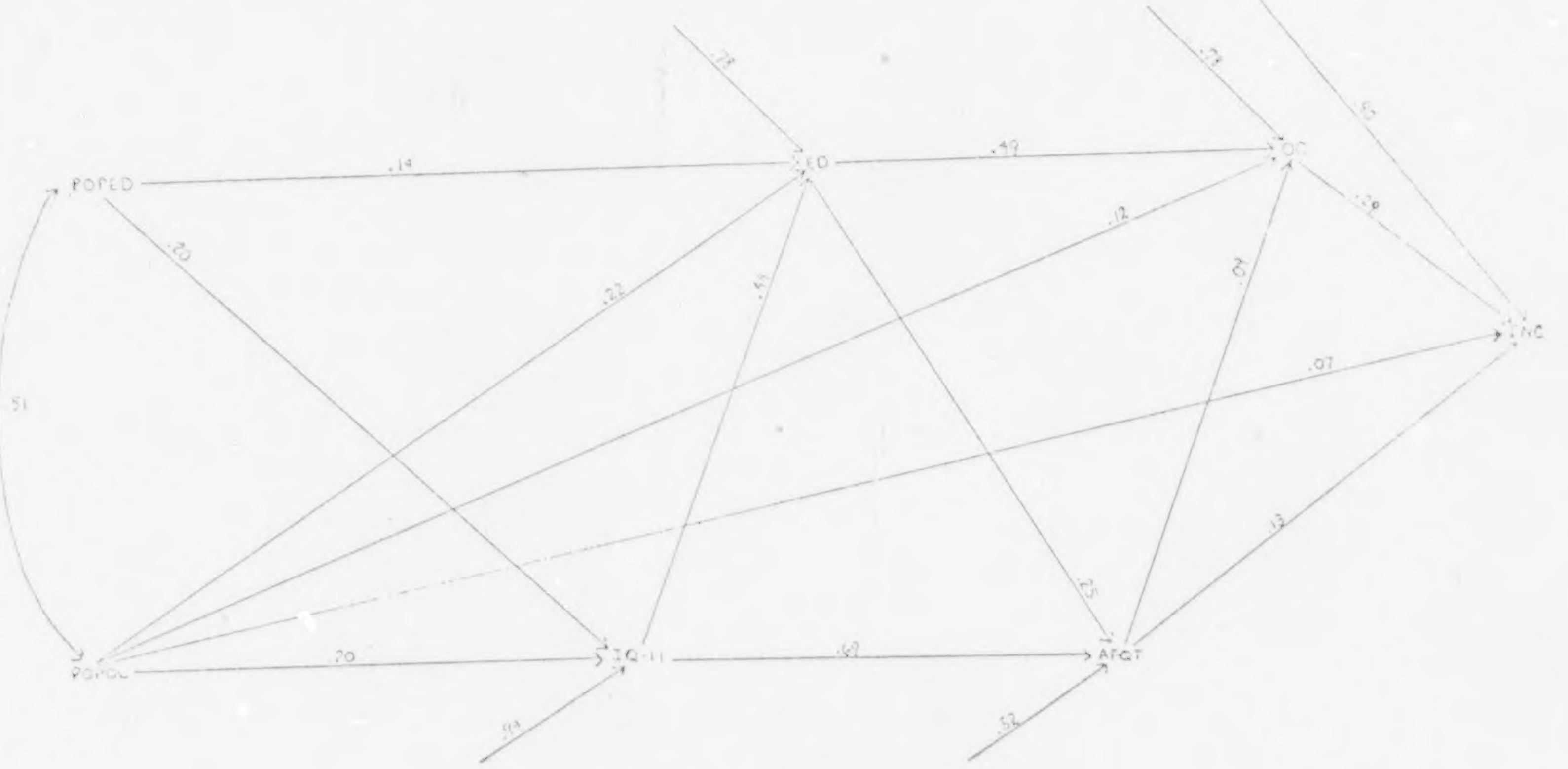
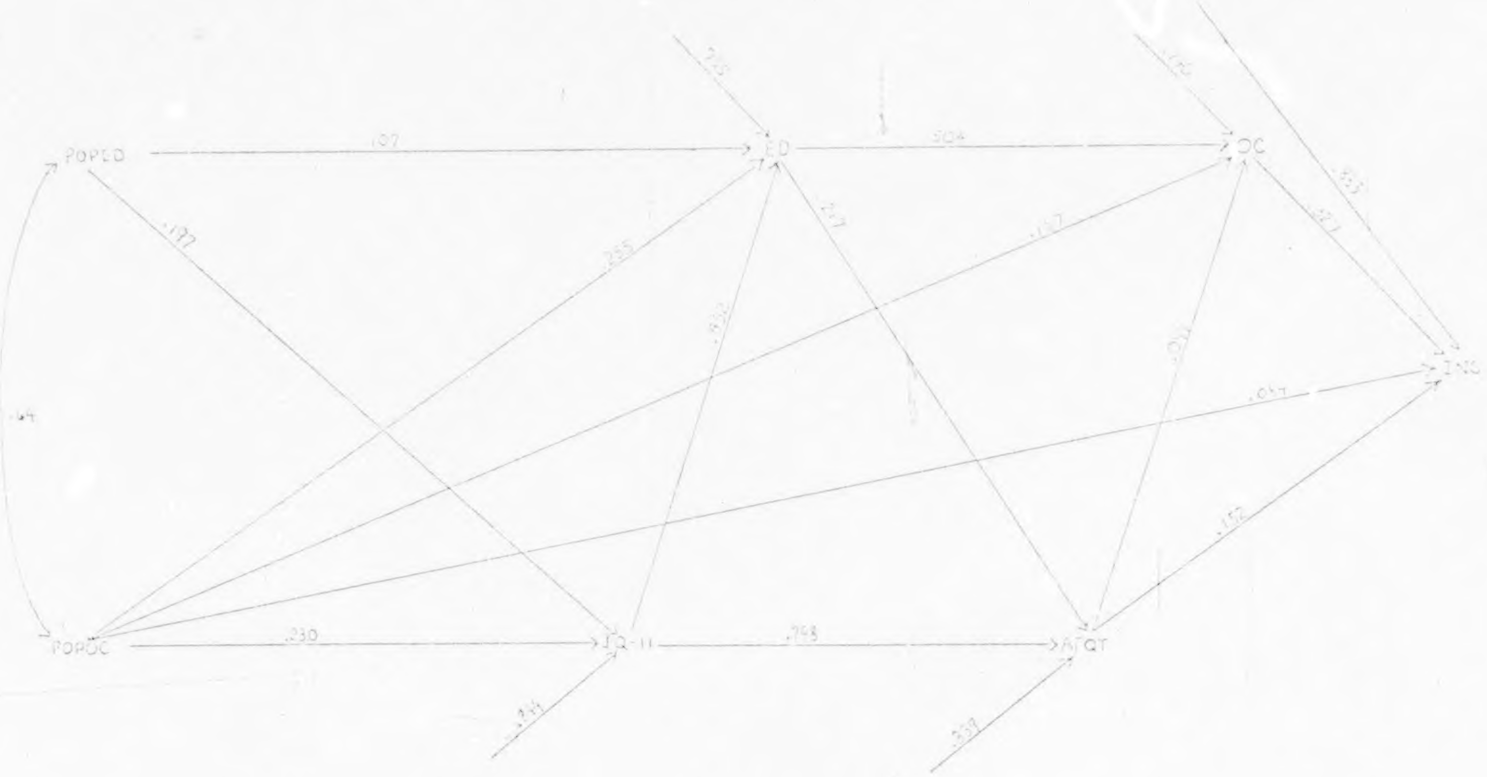

POPED
POPOC
ED
IQ-11
AFQT
OC
INC
.51
.14
.20
.22
.44
.78
.70
.93
.69
.52
.25
.49
.12
.07
.09
.73
.85
.28
.13

FIGURE 2

Relationships Between Characteristics of Native White Non-Farm Males Aged 25-64 in 1962, Based on "True" Correlations


POPED
POPOC
ED
OC
INC
IQ-11
AFQT
.64
.107
.197
.255
.632
.725
.230
.798
.444
.504
.217
.157
.011
.047
.152
.337
.776
.271
.855

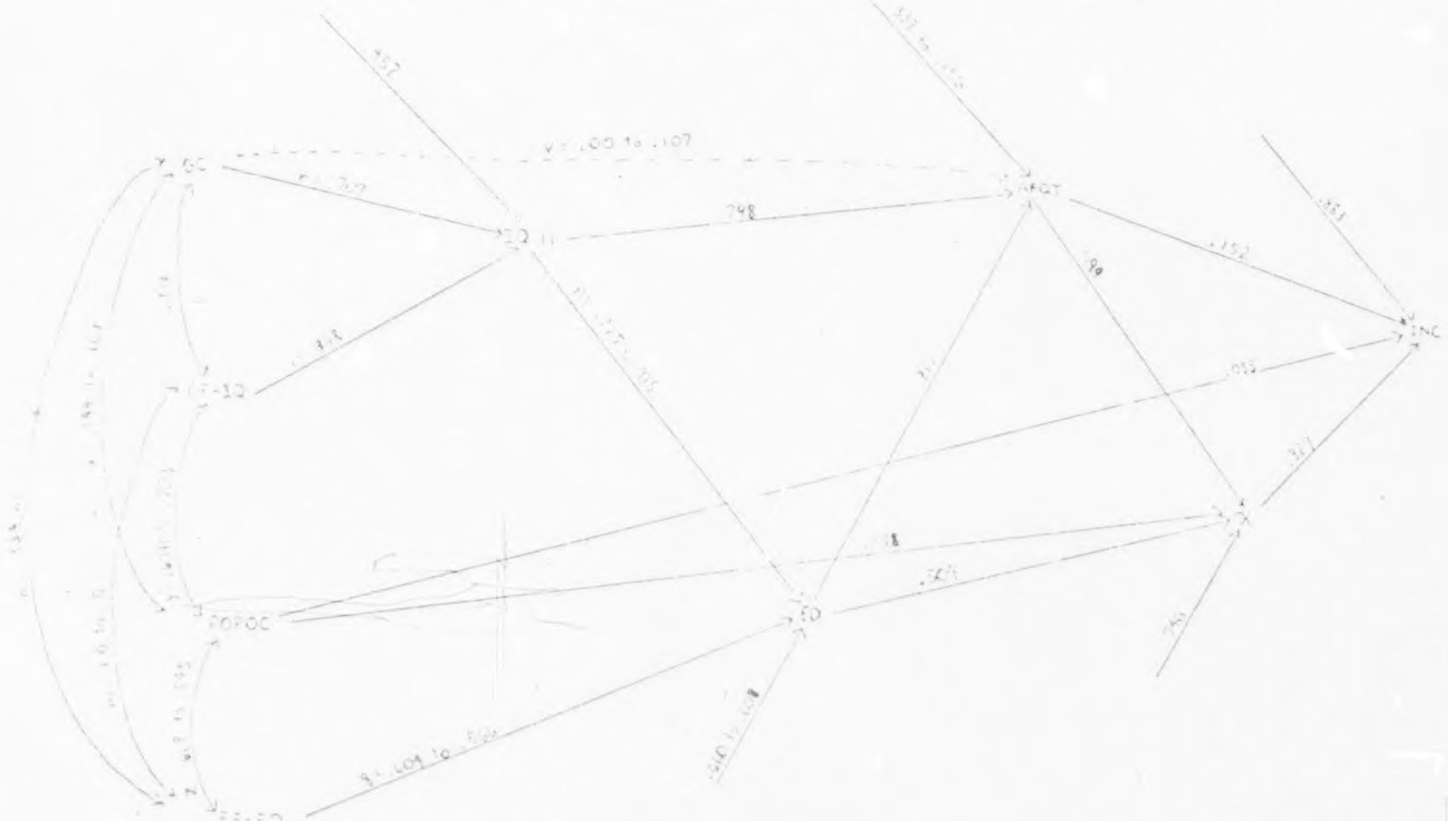
tions affect the final estimates derived. In addition, Jencks et al. found no data set which provided information concerning the correlation between family background characteristics influencing a son's test scores and those influencing his educational attainment. They therefore considered three possible values for this correlation (m)--$m = 1.00$, $m = .75$, and $m = .50$. Using these values they could then estimate two other correlations, the correlation between EF-ED and ED (q) and the correlation between IQ-11 and ED (p). The estimates are:

If $m = 1$ $\quad$ $q = .604$ and $p = .227$
If $m = 0.75$ $\quad$ $q = .573$ and $p = .329$
If $m = 0.50$ $\quad$ $q = 0.566$ and $p = .415$

These estimates are then used in further computations. Figure 3 represents the relationships finally obtained using estimates of the proably effects of the two hypothetical variables, IQ genotype and family background, on adult status.

FIGURE 3

Relationships Between Characteristics of White Non-Farm Men, Assuming Resemblance Between Brothers is Due Entirely to Family Environment


GC
EF-IQ
DOPOC
EF-ED
IQ
AFQT
ED
OC
INC
v=.00 to .107
.457
.798
.152
.363
.055
.327
.505

Where two values are given on a path, the first value is the one derived by assuming m=1.0, v=0; the second by assuming m=0.50, v=0, 107. Intermediate values of m and v produce intermediate values for all paths.